

THE IRON AGE

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SEE
PAGE 27



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THE IRON AGE

New York, Thursday, August 6, 1908.

The Industrial Village at Roebling, N. J.

(With Supplement.)

One of the marked tendencies in connection with industrial progress at the present day is found in the provisions made by large manufacturing concerns for the comfortable housing of their employees and those dependent upon them. It goes without saying that laborers whose home surroundings are attractive and pleasant and who can enjoy to probably the fullest extent the comforts of life compatible with the circumstances of wage earners, are likely to prove more efficient than those who are otherwise domiciled. There is the incentive on the part of the men to become more and more proficient in the department of work in which they are engaged, so that their term of service may be lengthened and they and their families continue to enjoy the privileges and comforts which come from a residence in the model village provided for them. It is doubtless with this idea in mind that so many projects for the betterment of the workingmen's condition have been started in this and other countries, and with results in many instances which have strikingly demonstrated the wisdom of the undertaking.

One of the more recent efforts to provide a model industrial village for its workmen and one which has been attended with marked success is that which the John A. Roebling's Sons Company has built at Roebling, N. J., 10 miles below the city of Trenton, on the south bank of the Delaware River. When it was decided some three years ago to erect a steel plant at this place it was obvious that dwelling houses for the workmen would be required, as there were no housing accommodations in that vicinity. As a result, while the steel plant, or "Lower Works," as it is called, was in process of construction a village was laid out immediately adjacent thereto, the idea being to make it a model in its way and provide comforts which would render the place attractive to the workmen as a home for themselves and their families.

The New Steel Works.

In this connection it is interesting to note that the new plant at Roebling, which is simply an addition to the company's extensive manufacturing facilities at Trenton, consists of a steel mill, a blooming mill, a rod mill and a wire mill, with possible additions in the near future. Construction work is still in progress, and at present the company is giving employment at this place to about 1000 hands. F. W. Roebling has the active management of the commercial and selling departments of the company, while Charles G. Roebling is in charge of the manufacturing and engineering departments, giving personal attention to all the details of the mill and village work, all plans of houses, &c., being submitted to him for approval before anything is done.

A few days ago a representative of *The Iron Age* had the extreme pleasure of visiting this model village at Roebling and gathering some facts concerning it, which are here presented, together with several illustrations, all of which afford an excellent idea of this most interesting community of working people.

The Village Site.

The tract upon which the village is located was originally land comprising three farms of a total area of about 250 acres and extending along the south side of the Delaware River for a distance of about 1½ miles. The whole property is about 40 ft. above the surface of the water, the face of the bluff being several hundred yards back from the river bank. The land as purchased was very rolling, requiring much grading to be done in

order to produce the present finely leveled surface. In many places there are "fills" ranging from 8 to 23 ft. The soil is very sandy and in order to stimulate the growth of lawn grass in the extensive park bordering the river front, along the sidewalks and in front of the houses, immense quantities of loam were required as a top dressing. The park is laid off with winding walks bordered here and there with rustic benches, the whole making with the natural growth of trees along the bluff an attractive and restful place of retreat, at the same time commanding a fine view of the river. At one end of this park, which covers probably an area of 10 acres or more, are tennis courts for the use of the villagers.

Ground was broken for the work of construction in June, 1905, and the first year 72 houses were erected. In the second year there were 241 of various types put up, making a total of 313, not including three hotels and two store buildings. The main hotel, known as Roebling Inn, and facing the park and river, was built the first year, together with one store building. In the second year the two workmen's hotels were erected and the remaining store building. The current year little or no construction in the way of houses has been done, as the housing accommodations at present provided are ample for the needs of the community for probably another year or two to come.

In the layout of the village the streets are 80 and 100 ft. in width, running parallel with and at right angles to the bank of the river, and lying in a nearly east and west and north and south direction. The wider streets have been planted with maple trees along both sides near the curb line, and the space in front of the houses not occupied by the sidewalks has been cultivated in grass plots. The sidewalks are of crushed stone bounded with yellow pine curbing, and the two driveways in the 100 ft. streets are 20 ft. wide, paved with macadam, while in the 80 ft. streets the single drive is 30 ft. wide.

Types of Houses.

In the village at present are 10 types of houses all constructed of brick with slate roofs in a most substantial manner, and fitted with the modern conveniences. It may be interesting to mention that type No. 1 is a two story four room and attic dwelling, with a shed extension in the rear containing toilet. This type of house has yellow pine trim finished natural, and is built in blocks or rows of 10. These houses are occupied by the foreign laborers, and the rental is \$8.50 per month. The foreign laborers are principally Hungarians and Slavs, and their houses are inspected regularly to prevent overcrowding, no one house being allowed to shelter more than six adults.

The house known as Type No. 2 is a semidetached two-story and attic dwelling, or as some would call it, a "twin" or "double" house, containing seven rooms, including a shed kitchen. This house has yellow pine trim, finished natural, and rents for \$9.50 per month.

Type No. 3 is also semidetached, two stories and attic in height, and contains eight rooms, with bath. It is steam heated, has cypress trim, finished natural, and rents for \$15 per month.

Type No. 4 contains six rooms, with bath and shed extension, is steam heated, and is of the semidetached style; renting for \$12 per month.

Coming to the better class of dwelling and designed for employees receiving a larger income we find Type No. 5, also of the semidetached style and two stories and attic in height. This has nine rooms, with bath, reception

hall, butler's pantry and shed extension. The interior trim is of cypress, finished natural. This type of house is heated by steam and is lighted by electricity. It has a laundry located in the cellar.

Type No. 6 is three stories in height and contains 10 rooms and bath, thus adapting it to still larger family requirements. Each house of this style is 20 ft. wide, has yellow pine trim, finished natural, laundry in the cellar, is steam heated and lighted by electricity. This type is built eight houses to the street block.

Type No. 7 is two stories and attic in height, has eight rooms and bath, butler's pantry, reception hall and vestibule, has cypress trim, finished natural, steam heat, electric lights and laundry in the cellar.

Type No. 8 is semidetached, two stories and attic in height, contains eight rooms and bath, with reception hall and vestibule, and has cypress trim, natural finish. It is heated by steam, lighted by electricity and has a laundry in the cellar.

Type No. 9 is two stories and attic in height, contains eight rooms and bath, has cypress trim, natural finish, steam heat and electric lights.

Types Nos. 5, 6, 7 and 8 rent for \$20 per month, while Type No. 9 brings \$18 per month. The exterior treatment of these houses is varied to produce attractive street architecture, the resultant effects being such as to reflect great credit upon the designer of them.

A handsome detached cottage two stories and attic in height represents Type No. 10, which contains 11 rooms and bath, with modern plumbing, butler's pantry and reception hall. This house is trimmed in cypress, finished natural, is heated by hot water and is lighted by electricity. It cost to build about \$7000, not including the land, and has every convenience of a thoroughly up to date residence. It rents for \$25 per month.

It may be here stated that the rents of the various types of houses are based on the cost of each, and are so proportioned that the interest on the original investment is but a small amount after deducting the cost of operation. The entire idea is to afford to the employees of the company a maximum of convenience and comfort in the way of living accommodations for the amount of capital invested and to meet all reasonable requirements.

All houses, except types Nos. 1 and 6, are built on lots 30 ft. wide by 100 ft. deep. Those designated as Type No. 1 occupy lots 16 ft. wide by 100 ft. deep, and houses of Type No. 6 occupy lots 20 ft. front by 120 ft. deep. All backyards are enclosed on three sides by a substantial fence of wire netting 4 ft. high, supported by a strong framework. Through the center of all blocks extend 10 ft. alleys for the convenient collection of ashes and garbage and also for the accommodation of delivery wagons, so that all material enters and goes out by way of the backyards. This tends to keep the streets free from litter and reduces the labor of keeping clean to a minimum. The lawns or grass plots between the stoop line and the curb are maintained by the company, which sees to it that the grass is kept cut and the surroundings rendered neat and attractive in appearance. All the tenant has to do is to look out for his back yard and keep it clear of rubbish, although in some instances it is utilized as a vegetable garden.

At the present time the construction of houses has not progressed further than the easterly side of Sixth avenue, extending from Riverside Park to Knickerbocker Way, but the village can gradually be extended westward to the limit of the tract of land acquired as the growth of the industrial plant demands it.

The Workingmen's Hotels.

The company maintains a licensed hotel known as Roebling Inn, beautifully situated, overlooking the river, where the only licensed bar in the village, a billiard room and bowling alleys are run for the benefit of the workmen and where transients may be comfortably accommodated. There are also two hotels for single men, where good board and a single room may be had for the modest sum of \$5 per week. The latter buildings are finished in a thoroughly first-class manner, are light and airy and equipped throughout with the modern conveniences. On the main floor is a sitting or reading room, a large din-

ing room, a well lighted and equipped kitchen, and at the counter near the entrance are periodicals, cigars and other equipment, such as is to be found in the usual hotel lobby. On the second and third floors are 63 single sleeping rooms and two large double rooms. The smaller rooms are each furnished with a single bed, two chairs, chiffonier and table, with a rug of sufficient size to nearly cover the entire floor area. The lighting is by electricity and the heating is by steam. On the second floor is also a sitting or lounging room. The lavatory on this floor is fitted with porcelain basins, while to the left are the water closets and to the right the shower baths, all with open plumbing and nickel plated fixtures. In the basement is a lunch or "grill" room, as it might be termed, where the wants of the transient visitor may be supplied. The second workingmen's hotel is arranged similar to the one just described, located at the corner of the street, except that it has no "grill" room in the basement.

The General Store.

A feature of every community of workingmen's homes controlled by an industrial concern giving employment to a large number of hands is the general or company store, where the villagers may obtain supplies of all description. In the present instance a store is maintained by the company in the village of Roebling, but it differs from many, in that it is conducted on a cash basis, or if preferred, accounts may be settled weekly, depending upon the credit of the customer. No script is issued by the company to its men and no money is deducted from the pay envelope for store purchases. It is left optional with the men whether they trade at the store or secure their supplies elsewhere, as nothing is done to restrict the free exercise of their wishes as to the place they may wish to purchase their goods. There is strong competition by reason of the stores in Trenton, which is only 10 miles away, and by the fact that peddlers are permitted to sell their goods through the streets of the village.

It is interesting to note that the store was opened in June just two years ago, Manager Samuel Major, who is also postmaster of the village, starting with two clerks when there were only nine families in the town. At present 22 clerks and four teams are kept busy in the various departments supplying the wants of a population which is in the neighborhood of 1400 souls. As showing the growing popularity of the store, it may be stated that June of the current year showed the largest volume of business since the store was opened. As Manager Major puts it, the establishment is a cross between a "general store and a department store, but is gradually working toward the department idea."

In connection with the store is a drug department, which, however, will shortly have quarters of its own immediately adjoining the Emergency Hospital, in the building occupied as the Town Hall. The post office was started in December last and has 172 lock boxes.

The Model Bakery.

Separated by only a few feet from the store is the model bakery, operated independently of the store, but the product of which is retailed by it. A point emphasized in connection with the bread baked here is that it is 2 oz. heavier than the regulation loaf. The bakery is on the main street, the bake room being on the ground floor and lighted by four large windows, thus enabling passers by to watch from the outside the operations which are going on within. The bake room is lined with white enameled brick or tile, and the ovens are fired from the rear, so that there is no dust or ashes in the bake room. Up to date machinery for mixing the dough and for doing other work constitutes the equipment. Much of the bread that is baked is the Hungarian loaf of rye, which is extensively used by the foreign employees of the company. On the second floor are the lockers and shower baths for the bakers, also storeroom for the supply of flour, which is sent down through a hopper to the first floor. The arrangement, equipment and general conduct of this bakery has won for it the commendation of the State Inspector, who has pronounced it "the finest in the State."

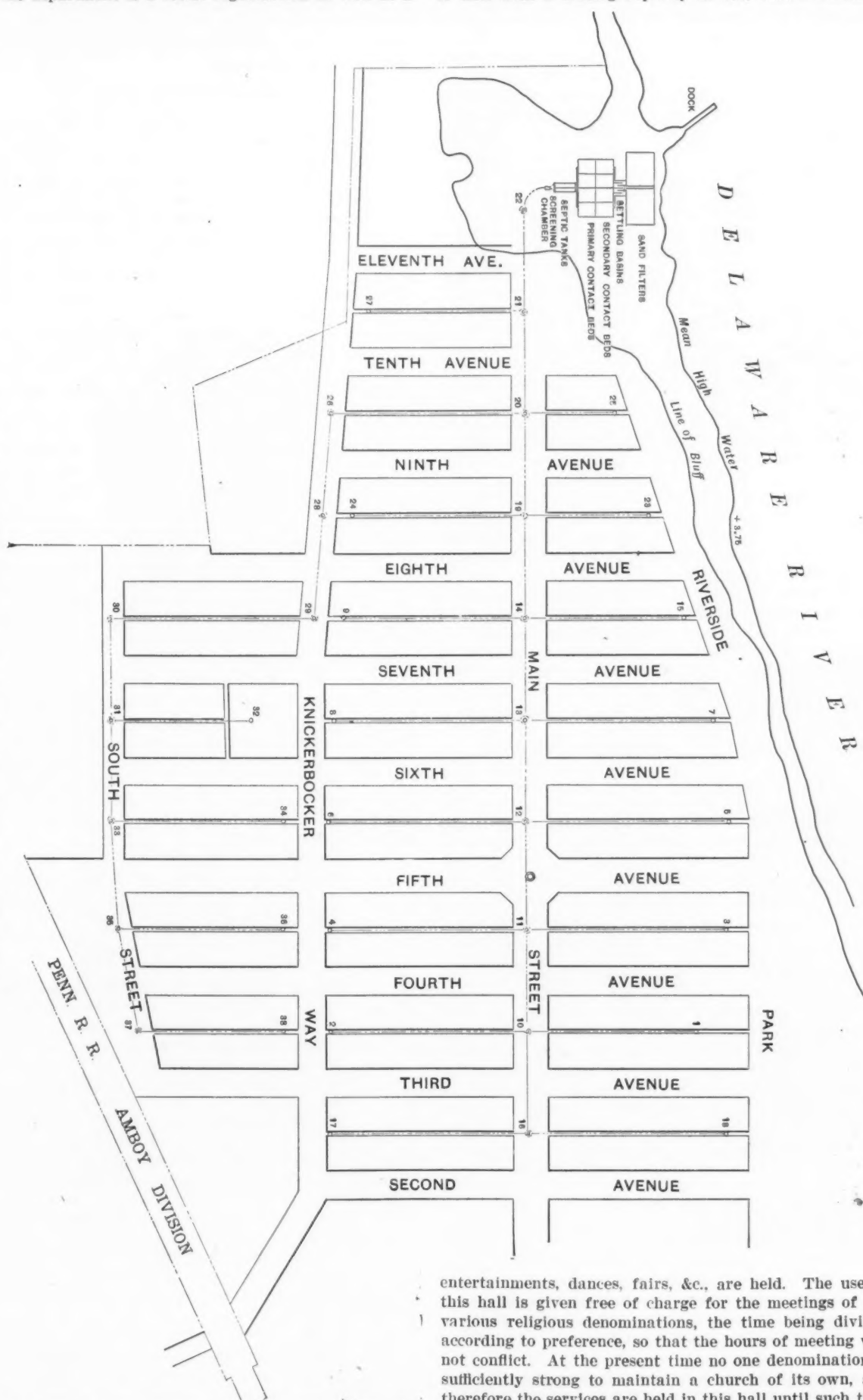
The village has a regularly organized Volunteer Fire

Department of 50 members, with quarters on the ground floor at the corner of the building occupied as the Town Hall at Fourth avenue and Main street. In a large measure, the department is a social organization as well as a

The Town Hall.

The Town Hall contains on the second floor the Executive Offices of the village and an Assembly Room or hall with a seating capacity of 250, where meetings,

Map of the Industrial Village at Rockling, N. J., Showing Sewage Disposal System.



fire fighter, and the members take great interest in it. They expect at no very distant date to have independent quarters of their own, which will be more in the nature of a social club.

entertainments, dances, fairs, &c., are held. The use of this hall is given free of charge for the meetings of the various religious denominations, the time being divided according to preference, so that the hours of meeting will not conflict. At the present time no one denomination is sufficiently strong to maintain a church of its own, and therefore the services are held in this hall until such time as the natural growth of the village warrants the erection of church edifices or chapels.

Occupying the ground floor on the Fourth avenue side of the building is the barber shop of the village, presided

over by the only native of sunny Italy in the place. There is also a graded school for the children of the community and an Emergency Hospital, fully equipped throughout and in which is the office of the resident physician in charge, who is employed by the company. He also has his private practice among the villagers.

In the hospital next to the doctor's office is the operating room, fully equipped with all the latest appliances likely to be required in case of accident to any of the villagers or employees of the steel works, and beyond this is a ward containing three cots. There is also a dietary kitchen equipped with all that is necessary in this line, as well as linen closet, cabinets, &c. The walls of the operating room and ward are white glazed tile and the woodwork is quartered oak, rubbed to a dead oil finish. Stretchers are used for the transportation of patients to the hospital, the population at present not being sufficiently large to justify the maintenance of an ambulance. An assistant is always in attendance at the hospital.

Referring to the halftone supplement accompanying this article, the upper left hand picture of the group is a view looking down Sixth avenue with the house occupied by the resident physician immediately in the foreground. This house and the three beyond it are Type No. 5. The next four are Type No. 9, and the one at the corner of the street in the distance is Type No. 8. The lower left hand picture of the group is a view down Third avenue, showing rows of houses occupied by the foreign laborers. The houses on the left are Type No. 1, and those on the right are Type No. 4.

The picture at the top in the center of the halftone is a view down Fifth avenue, showing the water standpipe at the intersection of Main street. This is one of the principal cross streets of the village, having a parkway down the center. The houses in the foreground are Type No. 3. The central picture of the group is the Town Hall and bakery, with the general store at the left. The official shown in uniform in the picture is the chief of police. The picture at the bottom of the central group is the gateway which affords communication between the village and the steel works. A row of laborers' houses is shown at the left in the picture.

The upper right hand picture shows the two workmen's hotels or boarding houses for single men. The lower right hand picture is a view looking down Main street, showing the water standpipe in the center and houses of Type No. 8 on the corners of the street in the foreground. The chimneys in the distance are those of the steam power plant at the steel works. On the right the second and third houses are Type No. 7 and the fourth house is Type No. 8.

Lighting, Water and Sewer Systems.

The streets are lighted by arc lamps and all public buildings, together with the better class of houses, as already stated, are lighted by incandescent lamps, the power being furnished by the company at a very low rate. The electricity for the lights is supplied from the power station of the steel works, use being made of a high tension current, transformed to low voltage at each building. Illuminating gas is supplied to the village from an outside corporation, but the Roebling Company owns its own street mains and furnishes every house desiring it with gas at \$1 per 1000 cu. ft.

The village is supplied with a system of water works with fire hydrants on every block and a standpipe pressure sufficient for fire protection. The standpipe is located about in the center of the village at the intersection of Fifth avenue and Main street. It is distinctly shown with its surroundings in several of the views of the village constituting the basis of our supplemental plate. The water system is extended to every house and supplies an unlimited amount of filtered water, which costs the tenant nothing beyond the price of his rent.

A separate system of sewers is in operation, to which every house is connected, even the cheapest dwellings being provided with kitchen sinks and sanitary toilets. In the diagram showing the layout of the village the sewer system is clearly indicated, together with a sewage disposal plant which is in contemplation, and which will

probably be built in the near future. This includes screening chamber, septic tanks, primary and secondary contact beds, settling basins and sand filters.

A trolley line running between Trenton and Camden passes along the southern boundary of the village, and with the steam railroad, affords ready transportation facilities for the community.

Miscellaneous Facilities.

At the approach to the village from the station on the Amboy Division of the Pennsylvania Railroad coal pockets are in course of construction and a coal yard is being established, from which supplies of coal will be retailed to the villagers at cost. Near by is a large storage yard for such impedimenta as a model village of this character would likely require. There is also an ice house, from which ice is supplied to the tenants of the village. A frame garage nearing completion, adjoining the storage yard, is for sheltering the automobile of one of the foremen of the steel works.

Many of the villagers are owners of motor, rowing or other pleasure boats, for the use of which the Delaware River affords excellent opportunity. For the convenience of these boat owners the company is building at a convenient point a dock of sufficient size to allow even of the landing of river excursion steamers. Several hundred yards above the dock are bathing houses for the free use of the villagers, and no expense is being spared to provide everything within reason for the comfort and health of those in the community.

For the temporary detention of malefactors a small prison containing three cells is provided at the left in the building constituting the gateway to the steel works, and which is located at the foot of the main street of the village. On the right of the gateway is the time-keeper's office, the time of each employee being taken as he passes to work and again when he returns to the village.

Credit for the Work.

It is interesting to state that all of the engineering work in connection with the project of this model village has been done by the regular employees of the John A. Roebling's Sons Company, the designing of the buildings and the supervision of their construction being in the hands of Isaac Harby, C. E., ably assisted by C. S. Arms, the resident engineer of the village, who is also a duly elected Justice of the Peace.

The ownership and management of the entire property is strictly a private enterprise in the hands of the company, and it is not the present intention to dispose of any of its holdings to employees. The village is incorporated, which leaves its administration to its owners.

Insulated or Uninsulated Feed Wires for Trolley Lines.—The railroad commissioners of Connecticut have granted the New York, New Haven & Hartford Railroad authority to use uninsulated feed wires in the construction of the proposed trolley line from Willimantic to South Coventry, thus establishing an important precedent in the State, and one that may have its influence on electric railroad practice elsewhere. The company frankly stated that a saving of one-third in expense would result from the change. The argument made was that insulated wires soon become uncovered because the insulation wears off, thus giving a false sense of security, which would never exist were the wires uncovered in the beginning. The commissioners impose strict conditions as to the use of insulators at all points where the breaking of the feeder supporters would make it possible for the wire to come in contact with buildings or other property.

The Lackawanna Steel Company is arranging to operate by Niagara Falls power the quarries which it has leased from the Indians of the Tuscarora reservation, situated in Niagara County, N. Y. Power will be furnished by the Niagara, Lockport & Ontario Power Company, which has secured a franchise for a transmission line across the reservation lands from the Indians.



Row of Houses in Sixth Avenue.
Houses Occupied by Foreign Laborers.

Looking Down Fifth Avenue.
Town Hall with Store at Left.
View in Second Avenue, Gateway at Right.

THE INDUSTRIAL VILLAGE OF JOHN A. ROEBLING'S SONS COMP



North Avenue.
Foreign Laborers.

Looking Down
Town Hall
View in Second Avenue

INDUSTRIAL VILLAGE OF JOHN A. ROSS



ing Down Fifth Avenue.
Hall with Store at Left.
nd Avenue, Gateway at Right.

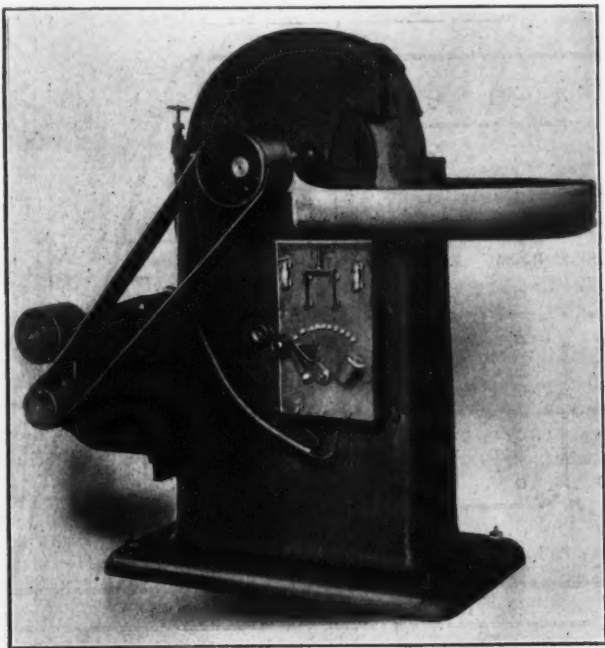
The Two Hotels for Workingmen.
View Down Main Street—Steel Works in the Distance.

ROEBLING'S SONS COMPANY AT ROEBLING, N. J.

A Ransom Motor-Driven Tool Grinder.

A water tool grinder fitted with motor drive and variable speed control, as made by the Ransom Mfg. Company, Oshkosh, Wis., is shown in the accompanying illustration. The belt driven type of this machine was described in *The Iron Age* September 5, 1907, and the controlling device now furnished on this machine with the motor drive was described November 7, 1907, as applied to the double wheel motor driven dry grinder made by this company. Its application in the present instance differs only in the form of connection between the rheostat and the controlling guide. In this case the arm of a field rheostat is joined to the adjustable water guard on the front hood. As the wheel wears down the guard is depressed to keep it as near the circumference as possible and in this way the connecting link or lever moves the arm on the rheostat, increasing the speed of the motor. In this way as the diameter of the wheel decreases its speed is accelerated to maintain practically the same peripheral speed.

Instead, as in former practice, of using the base of the machine as a reservoir for water and depending on



A Motor Driven Water Tool Grinder Built by the Ransom Mfg. Company, Oshkosh, Wis., and Fitted with Constant Wheel Speed Control.

a hand hole in the bottom of the frame for withdrawing sediment, an iron tank, cast in one piece with the side cover plate, is now fitted in the bottom of the base at the opposite side of the machine, as shown in the engraving. This tank holds several pails of water, and the settling pan is large enough to render frequent clearing unnecessary. The advantage of this arrangement is apparent in that the entire tank with contents can be removed and carried outside of the shop for cleaning.

Water is forced up to the wheel by a centrifugal pump located in the bottom of the tank, and having no wearing surfaces below the water, it is not affected by deposits of grit. The pump is driven through a vertical spindle carrying a pulley on its upper end and by a belt from a driving pulley on the wheel shaft on the reverse side of the machine, as seen in the view here shown. The belt runs at a quarter turn over a pair of idlers attached to the tank cover plate, which also serve as belt tighteners. Regulation of the water supply is governed by the valve at the rear of the machine.

The tool rest set in the apron in front of the wheel, instead of having a solid top, has openings that permit the water to shoot through without spattering the operator.

A motor of any size or make or for any current may be used to operate this grinder, but unless otherwise specified an open type made by the General Electric Com-

pany is supplied. Tension of the driving belt is regulated by an adjustable idler attached to the rear of the grinder above the motor. A speed controller can be furnished with these machines when a direct current motor is applied, but being a separate attachment is not included as a regular part of the grinder.

The machine here shown carries a wheel 20 x 1½ in. on an arbor 1 9-16 in. in diameter, with a driving pulley 6 x 4½ in.; the base is 20 x 33 in., and the tool with its equipment as here described weighs 950 lb.

Magnalium, a Light Weight Alloy.

Magnalium is a new alloy of aluminum and magnesium, lighter than aluminum. This metal has recently been made a commercial possibility to American users, being manufactured in Germany and imported and sold in this country by Morris R. Machol, 32 Park place, New York City. Supplied in the form of bars and ingots for casting or in finished shapes, such as sheets, tubes, plates and practically any form in which brass is furnished, it is available for a wide range of uses. In Europe it has been employed in the construction of airships and dirigible aeroplanes.

Cast in dry sand, the usual grade of magnalium has a tensile strength of 18,000 to 21,000 lb. per square inch and an elongation of 3.75 per cent.; cast in iron chills, the tensile strength rises to 22,000 to 25,000 lb. Soft rolled sheets of the alloy show 42,000 lb. tensile strength and 15 per cent. elongation, and when hard rolled 52,000 lb. tensile strength and 3 per cent. reduction of area.

Magnalium is closer grained, and takes a good polish. Its color is whiter than the grayish looking aluminum. While the specific gravity of aluminum is 2.64, that of magnalium, according to the alloy, is 2.4 to 2.57. It melts at 640 to 676 degrees F., and resists oxidation better than aluminum. Its electric conductivity is about 56 per cent. of that of pure copper, aluminum being 63.20 per cent. Some special treatment must be given to the alloy in melting, casting, forging, rolling, annealing, drawing, machining, pickling and coating, to secure the best results. This has been worked out carefully.

The Lake Superior Corporation's Affairs.

Six banks and two trust companies of Philadelphia on July 29 bid in stocks and bonds of the Lake Superior Corporation with a par value of \$6,666,500, which had been held as collateral by these institutions against a loan to the Canadian Improvement Company of \$1,611,000. The securities were sold at \$1,592,687, which nearly equals the amount of the financial institutions' loan. Each institution bid on its own holdings with no opposition.

The sale does not affect the status of the reorganized Lake Superior property, but simply transfers the control of the Lake Superior Corporation from the New York interests identified with the Canadian Improvement Company to the Philadelphia institutions that hold the loan. The foreclosure of the collateral at public sale resulted from an attempt of the Canadian Improvement Company to finance the organization of the Consolidated Lake Superior Company through loans placed in Philadelphia and New York, and the failure of the former to make satisfactory arrangements for an extension of time on the 6 per cent. notes held by the Philadelphia banks.

It was reported that the United States Steel Corporation had bought the securities, but this is denied by President W. E. Corey.

The William Tod Company, Youngstown, Ohio, is about ready to install four gas driven blowing engines at the two new blast furnaces of the Ohio Works of the Carnegie Steel Company, Youngstown. These engines have 42-in. gas cylinders, 80-in. air cylinders and are of 60-in. stroke. The William Tod Company is also building a 32 and 64 x 48 in. horizontal vertical steam engine for the Struthers plant of the Youngstown Sheet & Tube Company.

The Utica Drop Forge & Tool Company's Plant.

While not remarkable for its size, there are few plants more interesting in their details than that of the Utica Drop Forge & Tool Company, at Whitesboro, near Utica, N. Y. In design, construction, equipment and operation it embodies many of the most modern features supplemented with not a few original ones, and it is admirably conformed to its purpose, which is the manufacture of nippers and pliers exclusively. The building, in accordance with a much advocated practice, is merely a shell to protect from the weather and does not carry the weight of any of the machinery and equipment, these being supported entirely from the floor. A lighter and therefore cheaper construction is consequently possible and extensions and changes can easily be made without interrupting operation. The building is of saw tooth roof construction, but the skylighted faces of the roof are not pointed directly to the north, being purposely given enough eastern exposure to admit sunlight for a short time in the morning, which prevents dampness and conduces to healthfulness. Equal consideration for the com-

made" factory. It was unquestionably because of the personal interest which the employees had in the work, and which could not have been expected of an outside contractor's men, that the reconstruction was accomplished so rapidly.

The Building.

Profiting, as was natural, by the experience of the fire, the new building has been made practically fireproof. Although the walls, roof and partitions are of wood in most cases, they are well protected by a sprinkler system, but as the floor is of concrete, as substantially no inflammable material is used in the shop, and as the forge department is isolated by a concrete wall, the danger of a fire is very far removed. The low insurance rate which has been given on the new plant is splendid evidence of this.

The shape of the building, the arrangement of the departments, the tracks of the industrial railway system and the points from which the different views given in the other illustrations were taken are indicated in the

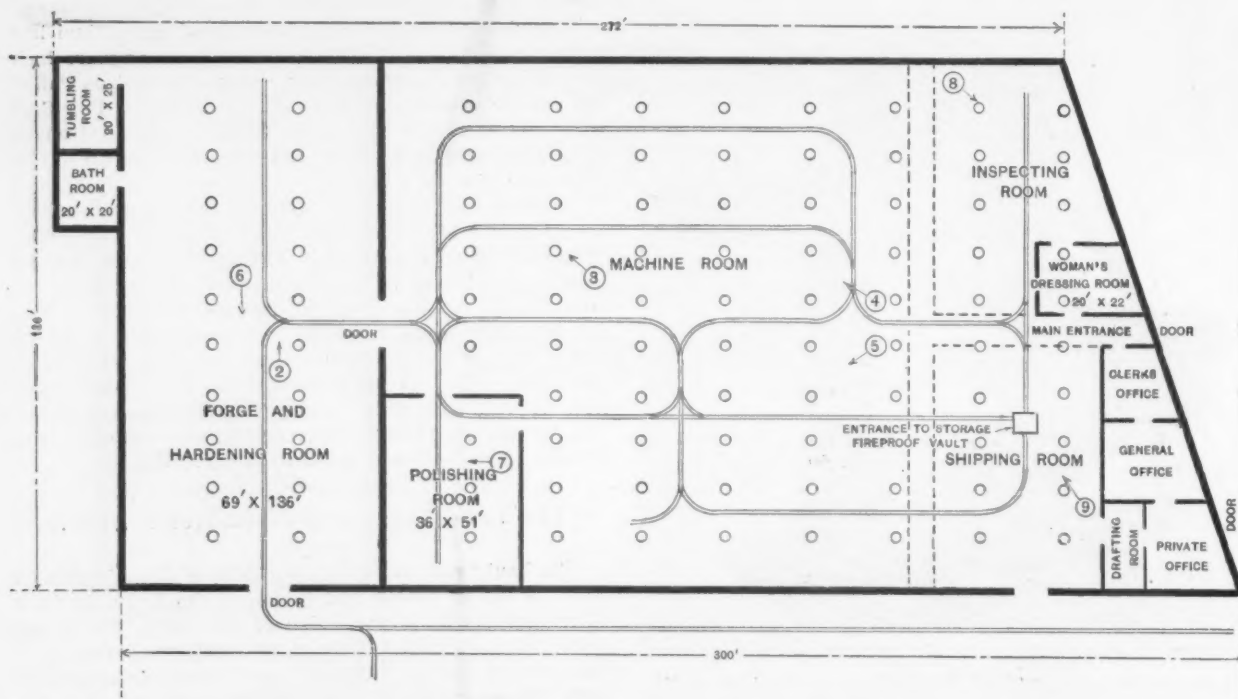


Fig. 1.—Plan of the New Plant of the Utica Drop Forge & Tool Company, Showing the Relation of Departments, Industrial Track System and a Key to the Photographs Shown in the Following Pages.

fort and health of the employees is shown in the sanitary arrangements.

Reasons for some of the unique features of the plant are apparent when the circumstances under which it was erected are explained. On June 25, 1907, the old factory was completely destroyed by fire, with an approximate total loss of \$250,000. Instead of laying off the operating force, which would have meant losing many of the men permanently by their going to other places for employment, they were invited to remain at their old wages and rebuild the plant. Practically all of them elected to do this, and the second day after the fire they were set to work clearing away the ruins. Then, under the direction of the superintendent of the works, who designed the new plant, the rebuilding was begun. To get the outside work done and the machinery under cover before winter set in the most easily obtainable and quickest erected material was selected for the construction, wood frame, side walls and roof and wrought iron pipe supporting columns. The foundations are concrete and the arrangement is such that at any time the wooden walls may be replaced by walls of brick or concrete, doing the work in sections, so as not to interfere with the carrying on of manufacturing operations. In eight months from the time of the fire the new plant was erected, equipped and in operation, and the men were back at their old work, proud of their "home-

plan, Fig. 1. The interior is of standard mill construction with an 18-ft. clear height under the main beams of the saw tooth roof. This height was necessary in the forge department to accommodate the drop hammers, and was maintained throughout, not only to preserve the continuity of the building, but to give extra air space. The excellent lighting is evident from the interior views, and this has been aided very materially by avoiding overhead obstructions and painting the interior walls a light color. No direct sunlight enters the building after 10 or 11 o'clock in the morning, except through the side windows, and these have opaque shades to exclude the hot sun's rays from the west in the afternoon. All through it has been the purpose to make the shop light, airy, comfortable and attractive, and complete in conveniences that are not too elegant to be freely used. More concerning these general features will be given later.

The Shop and Its Equipment.

The departments in which the consecutive operations on the product are performed are located so that the work progresses from the rear or south end to the front or north end, or from left to right, as viewed on the plan, Fig. 1. There is a loop made, however, from the inspection department to the grinding and polishing department and back again as the work is inspected between operations.

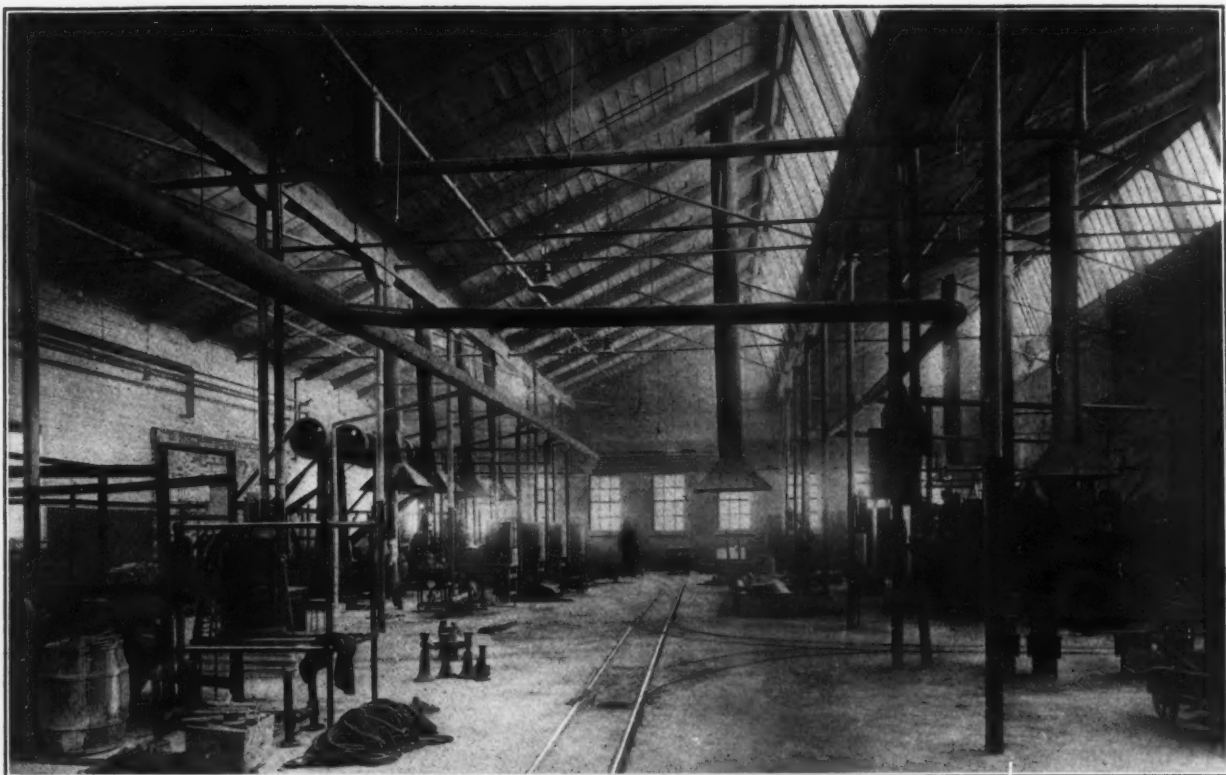


Fig. 2.—The West End of the Forge and Hardening Department.—Forges and Hammers at the Left and Annealing and Hardening Furnaces at the Right.

This work is done by girls, who see that any defective parts are thrown out or sent back to be repaired. The continuous movement of the work is in charge of persons solely responsible for it. An electric locomotive and cars covers the narrow gauge track system once every so often according to a schedule, and no wait is made for work which is not ready. This avoids clogging in any one department and has been found to expedite the handling. As giving some idea of the quantity of material handled it is stated that at times a single load will amount to nearly five tons.

In the forge room, views of which are given in Figs. 2 and 6, are the forges, hammers and annealing and hardening furnaces. The hammers at present installed are rated from 500 to 1500 lb., and foundations are laid and provision made for the addition of more whenever they are needed. A motor-driven blower furnishes air for the blast for the forge fires, for blowing scale from the dies and for augmenting the ventilation. The pipes for the latter extend nearly to the floor and discharge cool air toward the operator of each hammer. Brown & Sharpe annealing furnaces are installed, as well as gas

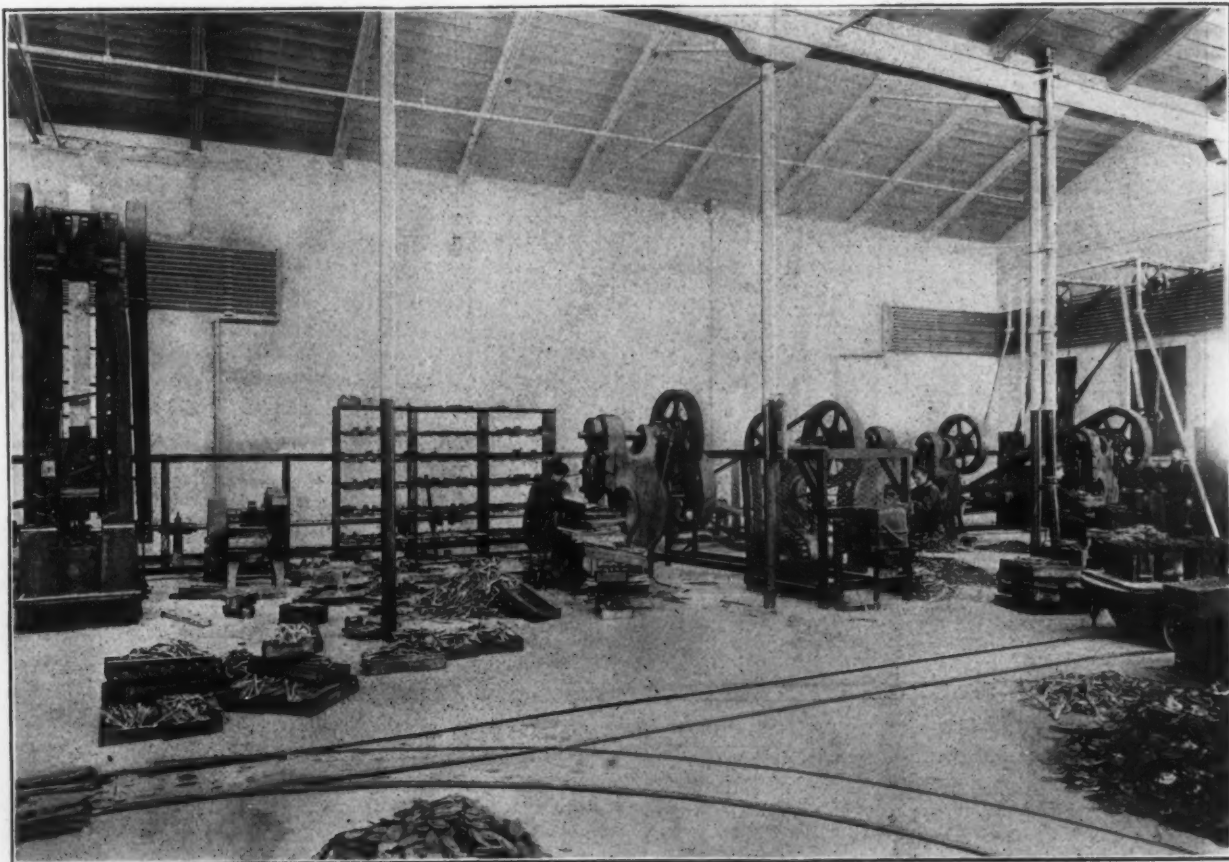


Fig. 3.—The Trimming Presses at the South End of the Machine Department.

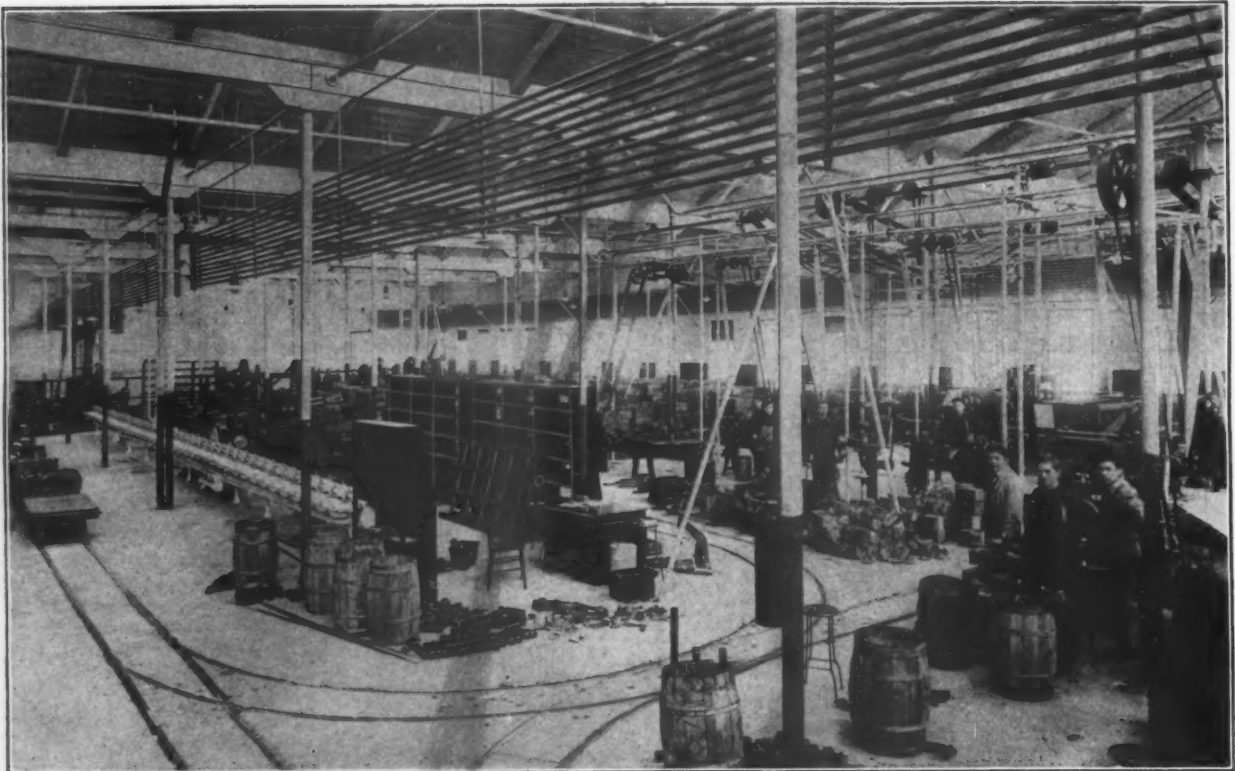


Fig. 4.—The Tool Department in the Center of the Machine Shop.—Shows the Heating Coils, Lavatories and Electric Locomotive and Cars at the Left.

furnaces, for annealing and hardening the product. Being fitted with pyrometers, the heats can be controlled positively, while, as a check on the operator, a set of Bristol recording instruments in the manager's office makes a 24-hour record of the heat fluctuations in the furnaces.

From the forge department, after tumbling, the work is sent to the trimming presses, shown in the view of the south end of the machine department, Fig. 3. After the work is trimmed it goes to the section of the machine department illustrated in Fig. 5, where the different drill-

ing, milling and bench operations are performed, after which the tools are ready for hardening.

In the grinding and polishing department, Fig. 7, are located the numerous machines for performing this work rapidly and effectively. The machines are hooded and are connected to a motor-driven exhaust fan, which draws all dust and loose emery from the room and discharges it outside the building. So well is this accomplished that the doors of this room can be wide open and no inconvenience be experienced from flying emery settling on any other machinery, and even the floor in the

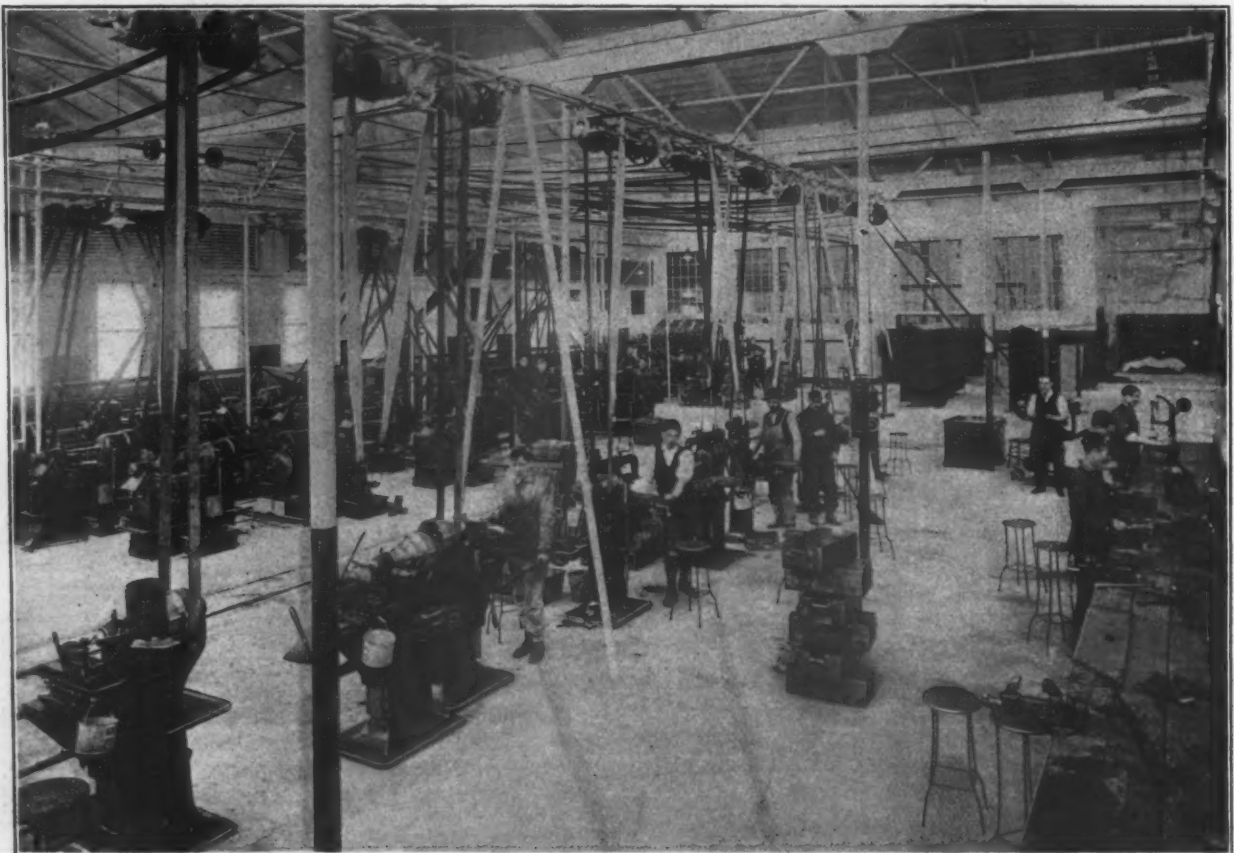


Fig. 5.—The East Side of the Machine Department.—Shows the Manner of Supporting Countershafting.

room shows no signs of the grinding dust. The nickel plating and buffing are also done in this department; the equipment, though small, is complete enough for the company's needs.

The tool department, Fig. 4, is responsible for making or keeping in repair, or both, the necessary drills, reamers, counterbores, milling cutters, arbors, jigs, fixtures and special tools. All supplies needed in the manufacturing operations are given from this room on orders and record made for the purpose of keeping the cost system, as well as the office record from which the respective supplies are ordered.

After the final inspection in the inspection department, Fig. 8, the product is delivered to the shipping department, Fig. 9, at the north end of the building, where it is boxed for shipment or placed in stock in the fireproof vault, which is excavated below the ground level and is reached only through the shipping room. This department also receives and distributes the raw materials and supplies to the various departments, or to the tool room.

cated the stenographic force, while the last room is the private office of the vice-president and works manager. A drafting room, complete in its equipment, adjoins the last mentioned office and is conveniently near the manager when he has occasion to consult with the draftsmen over drawings and designs. All work requiring it is made from drawings or sketches, which are preserved as a check on the work done and allow making duplicate parts at any time in years to come.

Power Supply.

The entire plant is driven by electricity (using a total of 275 hp.) purchased from the local company and generated at Trenton Falls, N. Y., 18 miles away. Each department is run by a separate motor, controlled by an autostarter and also at the switchboard by a circuit breaker. The main feed wire entering the transformer vault carries a current of 2200 volts, which, after being stepped down to 440 volts, is carried underground in water tight lead cable incased in fiber conduit to the main switchboard, where the connection is made to the

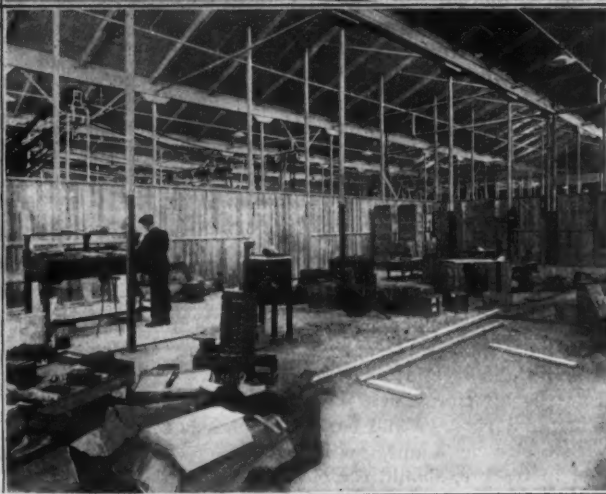
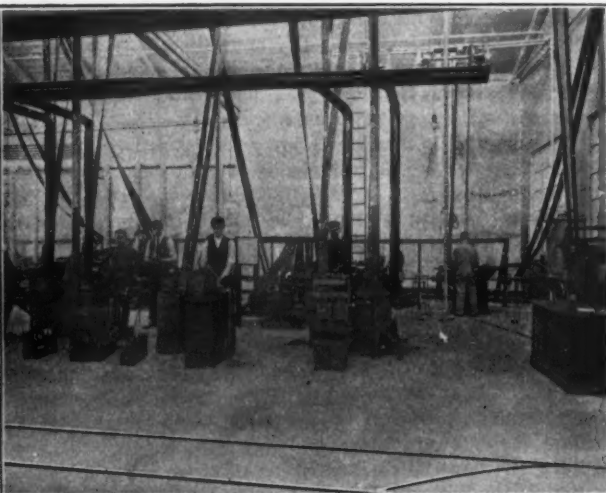
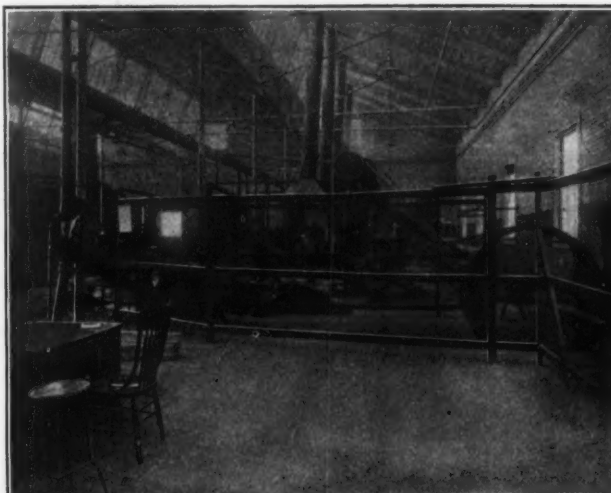


Fig. 6.—The East End of the Forge Department.
Fig. 8.—The Inspection Department.

Fig. 7.—The Polishing Department.
Fig. 9.—The Shipping Department.

where they are reissued on order. In all of the handling of the product up to the time that it is received by the shipping department the parts are carried in sheet metal trays or boxes. The pliers, before they are assembled, are routed in these boxes, but with the boxes inverted and the loose pieces inserted in holes in the bottoms of the boxes. As all of the boxes or trays are the same size and have the same number of holes in their bottoms, it is easy to calculate the number of parts at all stages of the handling, and if any disappear at any time they must be accounted for, which is an effective check on dishonesty.

Offices and Drafting Room.

The offices, consisting of three rooms, are in the northeast corner of the plant, and are finished in oak. In the first room the clerical work is done; in the next the general factory business is conducted, and here also is lo-

cated the stenographic force, while the last room is the private office of the vice-president and works manager. A drafting room, complete in its equipment, adjoins the last mentioned office and is conveniently near the manager when he has occasion to consult with the draftsmen over drawings and designs. All work requiring it is made from drawings or sketches, which are preserved as a check on the work done and allow making duplicate parts at any time in years to come.

The electric light wires are introduced in the same way, and after passing the circuit breaker are carried underground to one of the building columns and follow the latter in the conduit pipe to the roof, where connection is made to the respective lights.

All the main shafting is on the floor, so as to be easily reached and perfectly safe, besides which it does not interfere with the light. Instead of being connected in one continuous length, as ordinarily done, each length is independent and is driven by a clutch, so that any one length, except the center one with which the motor is connected, can be thrown out without stopping the others. Plenty of room is allowed for a person to walk and clean behind each shaft and the oiling can be accomplished with prac-

tically no risk to the attendant. Each shaft is inclosed by a screen wire guard 6 ft. high, within which inclosure none but authorized persons are permitted to go.

All countershafts are mounted on iron frames made of 2-in. wrought iron pipe, and driven, when possible, from the line shaft on the floor. When it is necessary to have extra driving shafts they also are mounted on the iron framework. The main advantage of so arranging a line of countershafts is, that should it ever be necessary to move any department the whole arrangement of piping can be taken down and reassembled in a new location or moved intact, and it can be done easily without much expense.

Heating, Ventilating and Lighting.

All windows on the side of the building open, while those in the roof do not, except in the forge department, where the heat from the fires makes the opening of the roof windows necessary. Provision is made for ventilating the main part of the building by 36 30-in. ventilators of a design that can be opened or closed in winter or summer when necessary to properly control the temperature. The ventilators in the forge and hardening department are fitted with smoke flues terminating in hoods at their lower ends just over the operator to carry away the heat and smoke from his vicinity. An opening around each flue allows the heat and gases collecting in the upper part of the room to escape.

The heating is done by a low pressure steam system. Two 100-hp. boilers, located in the forge room, as shown in Fig. 6, fitted with automatic damper and feed water regulators, furnish steam at a maximum pressure of 15 lb. Only one boiler at a time is in use, the other being held in reserve, but the boilers are used alternately, so as to keep both in working order. Means are provided for operating both boilers together if it ever becomes necessary. The steam is conducted to the center of the building through an 8-in. pipe, then delivered to the separate coils which heat the building. These coils are suspended from the main beams of the roof trusses at a height which brings their lowest point above the water line of the boilers, so that the condensation is returned by gravity. Hanging the coils at this height also serves to keep the roof free from snow and ice, which is sometimes a difficulty with a saw-tooth roof. The heat rising before it warms the lower part of the room makes the roof the warmest part of the building. Though the temperature is only 65 degrees F. near the floor, it is considerably more at the roof, and the melted ice and snow drains to the gutters. From the latter the water is taken in leaders through the building to a sewer under ground below the frost line. The gutters slope 5-16 in. per ft, the longest slope being 27 ft. Last winter when the snow on the ground was two feet deep, and the temperature below zero, no trouble was experienced from choked gutters.

The natural light in the daytime through the roof and side windows is nearly equal to that outside, there being an almost total absence of shadows, as will be seen from the interior views. A plentiful supply of artificial light for dark days and early twilights is afforded by 96 Nernst electric lamps, while 23 2000-cp. gas lamps are kept in reserve, should the electric light fail.

Sanitary Conveniences

Individual wash bowls of white enamel, arranged to give each employe hot and cold water, are provided, and individual metal lockers, so placed as to accommodate each department to the best advantage, are also installed. In the forge and hardening department, where the work is more or less dirty, there is a bathroom of white enamel brick, fitted with a combination hot and cold water shower bath, as well as wash bowls. The idea of building the room of white enamel brick was that once a day a hose connection with the hot water supply could be used to wash the entire room, thus keeping it clean. The water closets are standard siphon jet, arranged in enclosed spaces 3 x 4 ft. The enclosing walls are made of sheet metal painted so that they can be scraped and repainted at intervals.

Fire Protection and General Features.

Connection with the city water mains, as well as with a 35,000-gal. steel water tank, affords very complete protection against repetition of the fire. The entire mill, including the vault, is fitted with sprinkler heads, and on the grounds outside are four hydrants.

A telephone system connects the different departments with each other, and any instrument can be connected with the outside service.

A rather odd thing is the signaling for starting and stopping work, there being no whistle on the outside, but on the inside each department has a small whistle, which is blown by compressed air. For the female help employed in the office and inspecting room a rest or recreation room is provided adjoining the inspection department.

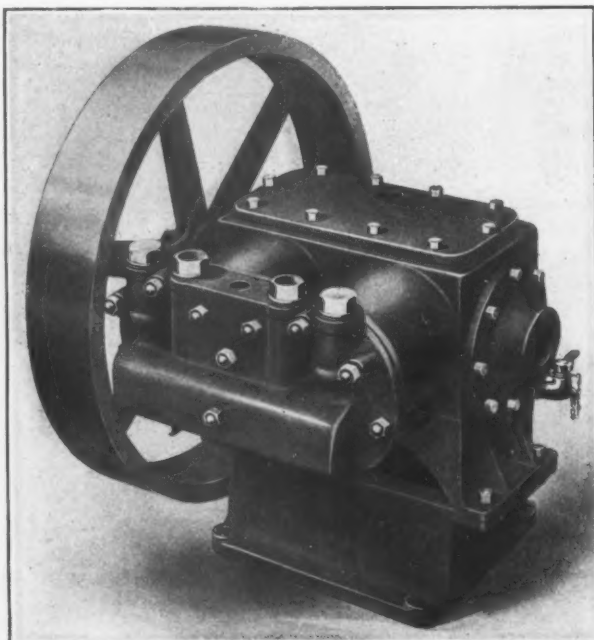
Chances are given the men in the employ of the company to learn tool making or to work up to the skilful, best paying operations.

Organization.

The Utica Drop Forge & Tool Company was organized in 1895. The main office is in Utica and the officers of the company are W. Pierrepont White, president; Henry F. Kelleman, vice-president and superintendent, to whom is due the credit for the design of the new plant, and Hugh White, secretary and treasurer.

A New Westinghouse Air Compressor.

In many cases air compressors of the standard types, as used with airbrake equipments, have been applied successfully for other industrial purposes where compressed



A New Airbrake Type of Compressor for Industrial Service
Made by the Westinghouse Traction Brake Company.

air is required. So great has become the demand for them that the Westinghouse Traction Brake Company, Wilmerding, Pa., has recently produced a line of belt-driven compressors similar to its motor-driven compressor for industrial service where the only power available is from shafting or where it is not expedient to use either an engine or electric motor for driving.

The illustration shows this type F-B belt-driven air compressor, as it is designated. It is made in four different sizes, F-1-B, F-2-B, F-3-B, and F-4-B, the capacities of which are, respectively, 15, 26, 44½, and 54½ cu. ft. of free air per minute, at the standard speeds, 220 rev. per min. for the F-1-B and F-2-B, and 200 rev. per min. for the F-3-B and F-4-B compressors. To operate the compressors against a pressure of 100 lb. requires 3, 5, 9, and 11 hp., respectively, for the four different sizes. They will operate successfully against pressures up to 200 lb. per square inch, and may be had with or without water-jacketed air cylinders as occasion requires.

The F-B compressor is very compact in design, being similar in all respects to the motor-driven compressor, except that the motor is replaced by a belt wheel keyed on the crank shaft of the compressor. It is of the duplex, horizontal, single-acting type, is portable, is applicable to any industrial service, and may be maintained at small cost.

Canadian Shipbuilding and Protection.

By orders-in-council, and by amendment to the tariff act of 1906, the Canadian government is quickly traveling toward the goal of bounties that the shipbuilding and the shipping interests set before the members of the Cabinet who were of the Tariff Commission of 1905-1906. In March last an order-in-council, which has practically the force of an act of Parliament, was passed at Ottawa, which will after this season exclude a fleet of large modern Norwegian cargo boats from the coal trade between Nova Scotia and the St. Lawrence ports. At the end of June a second order-in-council was passed which will exclude from the Pacific coasting trade any but Canadian or British vessels and restrict to these vessels the carrying of Canadian merchandise in bond between United States Pacific ports and the ports of British Columbia.

The New Duty on Repairs.

About the time that this last concession was made to protect Canadian shipping already in service, the tariff act of 1906 was so amended as to provide for a duty of 25 per cent, on all repairs to Canadian vessels made in United States shipyards. The United States is, of course, not mentioned in the new clause which has gone into the tariff; but no other nation does any repairs for Canadian vessels in the coasting and lake trade, and the intent of the amendment to the law is obviously to prevent Canadian railroads and other transport companies that have steel vessels in service on the Great Lakes from sending them to Buffalo, Lorain, Chicago, Detroit or Bay City for repairs.

The Ontario shipbuilding interests had been working for this change in the law for two years, and recently when they were seeking the aid of the boards of trade in the Canadian lake and coast cities they made the statement that in 1907 Canadian owners of steel vessels spent \$500,000 in repairs at American lake yards. Early in the agitation this year, at least as far back as March, the Dominion Marine Association, in which the owners of lake vessels are organized, protested against a duty on repairs; and in doing so laid much stress on the statement that such a duty would work much inconvenience and hardship to owners of Canadian steamers on the lakes because at present there are not adequate facilities at Canadian ports for making extensive repairs. As concerns steamers which need overhauling in dry dock, this statement of the Dominion Marine Association is correct. There are as yet probably only five shipyards with modern equipment in Canada. All but one are on the Great Lakes, and only at the Collingwood yard is there a dry dock in which the newer and larger vessels now engaged in the Canadian lake passenger and freight service can be handled. But there was much pressure from Ontario for this protection for the lake yards, and as the recent provincial elections in Ontario have shown that the Ottawa Government is admittedly in great danger there at the coming general election, it gave way and inserted the repairs clause in the tariff as urged by the lake shipbuilding interests.

Atlantic Coast Interests.

Except on the Great Lakes the duty on repairs will not much affect the Canadian shipbuilding industry. Emergency work on trans-atlantic steamers in the St. Lawrence trade has hitherto been done mostly at Levis, opposite Quebec, while for the Maritime Provinces there is a large dry dock at Halifax which is available for both coasting and trans-atlantic vessels. There are few modern steel vessels on the Canadian register in the coastwise trade of the Maritime Provinces, scarcely sufficient to keep the repair shops at Halifax and St. John fully employed.

It was a grievance with the shipyard interests at Halifax that at times when the big Norwegian steamers in the Siney and Montreal coal trade needed repairs at the end of the St. Lawrence season they were taken to American ports on the Atlantic coast. This passing by of the Halifax dry dock by the Norwegian steamers and the failure of the managers to buy supplies at Nova Scotia ports were responsible for the Maritime Province

agitation which ended in the exclusion of the Norwegian boats from the coastwise trade in which they were doing a large and growing business. The larger of these Norwegian steamers, which were built in English shipyards, never competed with any Canadian vessels for the St. Lawrence coal trade, simply because there have never been any such Canadian vessels at the Maritime Province ports. All vessels on the Canadian coastwise register that are large and modern are engaged in the lake trade; for comparatively little Canadian capital has gone into steel vessels for tidewater coastwise business on either the Atlantic or the Pacific coast.

Increased Agitation for Bounties.

These concessions to the shipbuilding and shipping industry, all made since the tariff commission investigation of 1905-1906, have stimulated anew the movement for bounties to shipbuilders. As part of this agitation there have been questions in the House of Commons with a view to ascertaining how much Government money has in recent years been spent on additions to the fleets of the Department of Marine and Fisheries and of other State Departments at Ottawa, and what proportion of the total sum has gone to British shipyards; for the promoters of this movement are as anxious for protection against the Clyde and the Tyne as for protection against American lake yards in the competition for repair work.

The return made in answer to these questions covered the period from 1900 to June, 1908. It showed that in these seven and a half years the Government had acquired 34 vessels. Nine of these vessels, representing an expenditure of \$1,279,267, were built for the Government in English and Scotch yards. The other 25, representing an expenditure of \$2,167,503, were built in Canada. Sixteen of these, including four dredges which cost from \$95,000 to \$501,400, and a number of tugs, were built at Sorel on the St. Lawrence in the Province of Quebec, where the Department of Marine and Fisheries has a yard and also a dry dock. Most of the other vessels were built at Ontario yards.

E. P.

General Electric Business Increasing.

The General Electric Company in the past week has booked orders for more than \$1,000,000 worth of equipment, most of which has come from foreign countries. The aggregate of these orders represents the largest quantity of orders booked in a similar period for a number of months. Following is a list of the orders received and which will result in the Schenectady factory working a full force of men:

From Isthmian Canal Commission: Six vertical Curtis turbine units, 1500 kw., 25 cycle, 220 volts, each complete with individual base condenser, air and circulating pumps and necessary piping; electrical equipment for one 20-ton traveling crane; four 35-kw. 125-volt direct current turbines, driven by exciters; four 500-kw. 600-volt rotary converters, each complete with three air blast type transformers; six 100-kw. 2200-6600 volt single phase oil cooled transformers; six 110-kw. air blast type transformers; two switchboard equipments. From Mitsui & Co., Japan: Fifty G. E. No. 52 railroad motor equipments, also rotary converters, transformers, &c.; 20 G. E. No. 52 double motor equipments, with headlights and spare parts; three 1000-kw. alternating current generators. From Australian General Electric Company: Seventy four-motor type M control equipments for G. E. No. 81 railroad motors. From Santos Dock Company, Brazil: Six 3000-kw. transformers and five 50-light constant current transformers; one motor generator set; 628 arc lamps; one switchboard. Small motors and transformers: Pueblo Tramway Light & Power Company, Mexico City, 10 water cooled 1500-kw. 60-cycle transformers.

The Brier Hill Iron & Coal Company, Youngstown, Ohio, has about completed the remodeling of its blast furnace. The steel work was done by the William B. Pollock Company and a new blowing engine was supplied by the William Tod Company, both of Youngstown. It has not been decided when the furnace will be started.

The Alton-Standard Oil Case.

A Review of the Facts.

BY R. L. ARDREY.

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The charges were paid twice a month by the Chicago office of the Standard Oil Company of Indiana to the auditor's office of the Alton in Chicago. The belt road collected its switching charge from the Alton. There was no "rebate" question involved in the case. The oil people paid the 6 and 7½ cent rates and no money was refunded by the railroad. The question whether the rate paid was high or low was not considered. Tariffs offered in evidence by the Government showed that other commodities paid 5 to 8 cents for the same movement; hence, the rate of 6 cents may be considered a fair and reasonable charge for oil in the quantities in which it was handled, in average carloads of perhaps 50,000 lb. There was no charge of discrimination, because there was no other refinery within 50 miles of Chicago shipping oil in carloads.

The theory of the Government was that the legal rate which should have been paid was 18 cents from Whiting to East St. Louis and 19½ cents from Chappell to St. Louis. There was no direct, specific tariff filed with the Interstate Commerce Commission on oil from Whiting or from Chappell over the Alton to the destinations named. No single document, taken alone, would show any rate on oil. Tariffs were not posted at Whiting in accordance with the law, although they had a case full of miscellaneous tariffs. The agent of the belt road at Whiting testified that when anybody asked him for a rate he telegraphed to the general freight agent at Chicago. The Alton did not make or publish any tariffs to St. Louis, its rates all being made to East St. Louis, Ill., on all classes of freight.

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Two witnesses for the Government, employees of the Interstate Commerce Commission, furnished the evidence to establish the 18 and 19½ cent rates. There was a tariff filed with the commission, Tariff No. 24 of the Chicago & St. Louis Traffic Association, a joint tariff of all the roads between Chicago and East St. Louis, in which a fifth-class rate was named of 18 cents. Oil was not mentioned, but this tariff was based on the Illinois classification, in which petroleum products are rated fifth class. There was a tariff or "application sheet" filed by the Alton in 1901, a separate document, which specified that Whiting and numerous other towns were to take Chicago rates. The Government witnesses expressed the opinion that this chain of three documents established a legal rate of 18 cents from Whiting to East St. Louis.

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Traffic Association, testified that Tariff No. 24 was not intended to cover oil, nor three other commodities—coal, coke and grain—on which the roads were supposed to issue their individual tariffs. The Alton "application sheet," which was filed with the commission, apparently authorized commodity tariffs from Chicago and the stations named, including Whiting, provided the rates were not lower than 6 cents, carloads. The Alton freight department formally made a commodity tariff of 6 cents from Chicago. This tariff was not filed itself at Washington, but was bound in a volume of several hundred similar tariffs and was kept in the general office in Chicago, where the clerks quoted rates to shippers or any one who inquired. Hollands, the chief tariff clerk of the Alton, who was one of the principal Government witnesses, testified that he understood the "application sheet" filed at Washington made any lawful rate from Chicago apply to Whiting, but the court would not permit him to testify whether it applied to the 6-cent rate.

Edward Bogardus, traffic manager of the Standard Oil Company at Chicago, testified that Hollands had told him the 6-cent rate was filed and was a legal rate; that during the time the shipments were made he had never heard of an 18-cent rate on oil from Whiting to East St. Louis; that he had always paid 6 cents; that he believed absolutely that he was shipping at a legal rate; and that he had not seen a copy of Tariff No. 24 until late in the period covered by these shipments, when he had asked the Burlington people to make a rate on empty barrels from a point in Illinois to Whiting, and they had called his attention to this tariff, which they said covered barrels and made it unnecessary to issue a tariff.

How the Illinois Classification Was Used.

One of the links in the chain of documents used by the Government to establish the 18-cent rate was the Illinois Classification, issued by State authority, by the Illinois Railroad and Warehouse Commission. If this document were excluded from the record the Government could show no rate at all over the Alton from the files of the commission. The witnesses from Washington produced from the files of the commission a copy of this Illinois Classification. How it got there was not shown. It was not filed by the Alton nor any other railroad. The Interstate Commerce act does not recognize the tariffs of State commissions, nor legalize them, nor provide for filing them. It only requires carriers to file tariffs and legalize them when filed. The document was apparently transmitted to Washington as an act of courtesy by the Illinois Commission, but this was not shown in the evidence. In Illinois a commodity rate, when lower, takes preference over the State classification as a legal rate. The Interstate Commerce Commission has ruled that a commodity rate supersedes a class rate, whether higher or lower.

Several witnesses for the defense were railroad traffic men of long experience in the making and application of tariffs, one of them having been a member of a committee of eight who had been invited by the Interstate Commerce Commission to advise the commission in making rules and regulations regarding tariffs. All of these witnesses showed that it was proper for the Alton road, under the "application sheet" which it had filed at Washington, to apply the 6-cent rate from Whiting. The defense offered to show by one of these witnesses that it was the general custom of Chicago roads to use commodity rates in this manner, but the court would not permit this evidence to go before the jury.

The Government had made a point that in the "application sheet" there was a list of several tariffs, and that it extended to Whiting only the rates shown in these tariffs. All the witnesses for the defense, including Hollands of the Alton, a Government witness, asserted that the application was not limited to these few tariffs, but would cover any lawful tariff made by the Alton from Chicago; and they all stated that the tariff making the 6-cent rate was a regular commodity tariff. The defense offered to show by one of its witnesses, who had had correspondence with the commission on the subject that formerly, during the time covered by these shipments, the commission had not required the railroads to include in an application sheet a list of the tariffs it cared, and

to limit its scope to the list so shown, but that recently, since the passage of the Hepburn law, and since the time covered by these shipments, the commission had issued a circular making this requirement. The court would not allow this evidence to be presented.

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To one who has no interest in the case except to read the transcript of the record, the evidence shows a peculiar state of affairs. There was no specific rate on oil, such as is contemplated by the law, between the two points, Whiting and East St. Louis, over the Alton road. The switching road which took the oil from Whiting did not make any through tariffs. The two Government witnesses from the office of the commission constructed a rate of 18 cents by using as one link a State classification which was not legally a part of the rate records of the commission. It has been widely heralded that there was a legal rate of 18 cents; but in the evidence this rate existed only in the opinions of two witnesses. On the other hand, all the expert witness for the defense showed by their evidence, based on their experience in handling rates, that the 6-cent rate was properly applied to the shipments, and important evidence to support their position was excluded.

The rate of 19½ cents from Chappell to St. Louis was constructed by the Government witnesses from Tariff No. 24, the Illinois Classification, and bridge tariffs of 1½ cents which were filed with the commission. Chappell, however, was not mentioned in Tariff No. 24, and to connect it with that tariff one of the witnesses had recourse to the long and short haul clause of the law, to apply the 18-cent class rate from Chicago to East St. Louis. The defense offered as evidence a Lake Shore tariff filed with the commission, which made a rate of 17 cents from Toledo to East St. Louis, through Chappell via the Alton, which by reference to the long and short clause would have made the 18-cent rate from Chappell illegal. This Lake Shore tariff contained a specific clause, "Rates from and to intermediate points will not exceed these rates on freight going in the same direction," and the Alton road was a party to this tariff. The court would not permit this tariff, nor any evidence regarding it, to go before the jury.

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It is one of the remarkable features of this case that the trial court, presumably following the strict rules of evidence in such a case, excluded so much evidence that would have been favorable to the defendant. The Toledo tariff would in itself, if admitted, have overturned the contention of the prosecution that the legal rate was 18 cents from either Whiting or Chappell. Hollands, the Alton witness, was at one time examined in the absence of the jury, to find out what he would say in answer to certain questions, and he made statements to justify the application of the 6-cent rate, but he was not permitted to make the same statements before the jury. The defense offered to prove that since 1891 the rate was 6 cents over the Alton from Whiting, but the court would not permit this to go before the jury.

The defense offered to show that in 1895 the Chicago & Eastern Illinois Railroad, a competitor of the Alton, had filed with the Interstate Commerce Commission a tariff which made a rate of 6¼ cents from Whiting to East St. Louis, and that owing to a difference in switching charges this was equivalent to the 6-cent rate over the Alton; and that this tariff had been in the files of the commission from 1895 until 1906, after the time covered by these shipments. The point the defense sought to make was that it had no motive for making any secret deal with the Alton to obtain a 6-cent rate, when it already had an equivalent rate, of unquestioned legality, over another road. One of the Government witness knew all about this document and testified to its history, but the court would not permit this tariff, or any evidence regarding the rate in it, to go before the jury.

The Government attorneys who handled the case showed an almost incredible grasp of details in presenting the evidence. They had the shipping orders for every car, the waybills of the belt road and the Alton, the "statements of billing" on which the freight was paid,

and a complete chain of documentary evidence on every car involved in the case. They had as witnesses all the railroad clerks who handled the shipments and the conductors who had charge of the trains. By the masterly manner in which they handled the case they demonstrated that the Government can hold its own with the greatest corporation in a contest that depends upon legal ability.

Lake Shipowners Are Having a Bad Season.

DULUTH, MINN., July 30, 1908.—It does not look like a very good year for ships which are dependent upon what tonnage may be handed them by shippers who own their own vessels, sufficient, in part at least, for the ore to be carried. There has been a heavy overbuilding of lake ore ships on account of the ease with which these ships have been financed. The custom has been to arrange with lake shipbuilders for underwriting steamship bonds to 50 per cent. of the cost of the vessels, these bonds being due in 10 annual equal installments, bearing 5 per cent. interest, secured by a mortgage on the ship, and covered by insurance in reliable marine companies. Thus each year a tenth of the debt has been paid off, and so far there never has been a single instance in which either principal or interest on these bonds has been defaulted. The shipbuilding companies have had no difficulty in placing these bonds, chiefly with individual and corporate investors along the lakes, and one individual is known who not long ago held more than \$4,000,000 of such bonds. By the annual payment of one-tenth the value of the ship, the security is continually improved, and the entire mortgage is held till the final payment by the mortgagee.

It has been the custom in recent fat years for managers of ships built under these conditions to keep a sinking fund, ample for interest and the retirement of bonds due the following year, and in most cases the earnings above this charge have been paid in dividends. These dividends have frequently run as high as 25 and 30 per cent. annually. Some vessel men have maintained a continuous 10 per cent. rate, putting all above that into surplus, and these may be able to pay something this year. The others can scarcely do so, for earnings of independent vessels, with few cargoes, and those at a cut rate from that paid of late, are not worth mentioning. Few ships financed under this general plan have been in commission long enough to pay off the entire bond issue, but many of them have nearly done so, in which case their interest charge is, to be sure, slight. None of these steel shipping operators figure much on the item of depreciation, for there has been no case on the lakes where a well built steel ore freighter, constructed along standard lines, has shown depreciation. Lake shipping firms have been anxious to increase their fleets, and have pushed construction, for several reasons, and in some cases without any apparent regard for the inevitable day of reckoning, when there should be temporarily too many ships for the trade. The customary charge for managing a ship per season is \$1000, and this, if an office controls by construction a fleet of from 25 to 100 ships, makes a very nice thing; then there are sometimes other emoluments, not so apparent to the naked eye.

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In an official opinion made public August 1 Attorney General Bonaparte holds that a national bank which conforms to a State law for guaranteeing bank deposits gives just cause for the forfeiture of its charter. Under this ruling of the head of the Department of Justice no national bank in Oklahoma can permit itself to be taxed, as its State banks are for the creation of a depositors' guarantee fund.

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The World's Production of Tin in 1907.

WASHINGTON, August 3, 1908.—The metallic tin produced in the United States in 1907 amounted to 62 tons, derived from 89 tons of concentrates, valued at \$33,285, according to the forthcoming report of the United States Geological Survey, prepared by Frank L. Hess. In addition several hundred pounds of metallic tin were produced in an experimental way by a mining company in South Dakota. A considerable quantity of tin ore, mostly low grade, which is not included in the production, was reported as mined and left on the dumps. The output of the United States, therefore, was only about one-twentieth of 1 per cent. of the world's total production for the year, but there was great activity in prospecting in Alaska, Washington, South Dakota, Texas and North and South Carolina, where tin deposits of more or less importance have been located.

As nearly as can be estimated from sources at this time available, the world's production of tin in 1907 seems to have been a little less than in 1906, being approximately 113,000 net tons in 1907, against between 115,000 and 120,000 net tons in 1906. The following table shows how the production was distributed:

World's Production of Tin in 1907.		(Net tons.)
Southeastern Asiatic area:		
Federated Malay States.....	54,242	
Banka	12,675	
Billiton	2,404	
Singkep	437	
Siam	4,645	
Burma	108	
China	4,500	
Japan	30	79,041
Australia:		
Queensland	3,454	
New South Wales.....	1,883	
Victoria	67	
Tasmania	2,918	
Western Australia.....	1,091	9,413
The Americas:		
Bolivia	18,306	
United States.....	62	
Mexico	4	18,372
Europe:		
Cornwall	4,860	
Portugal	16	
Spain, Austria, Germany (estimated).....	100	4,976
Africa:		
Cape Colony.....	140	
Transvaal	878	
Other portions of South Africa.....	432	1,450
Total.....	113,252	

In spite of high prices in the first part of the year, the output did not increase owing to a number of reasons, principal among which are the working out of many placers in the Federated Malay States, Billiton and Banka; drouth in the Australian tin fields, so that water for working was scarce; and lack of transportation facilities and of labor in Bolivia. The high export duty charged by the British Government upon all tin shipped from the Federated Malay States should probably also be given as a reason. This duty amounts ordinarily to 10 per cent., but certain favored companies pay only 8 per cent. The value of the metal is fixed by the latest quotations for Straits tin at Singapore. The duty on ore is 33½ per cent. ad valorem, unless it is to be smelted in a country under British rule, in which case the duty is 10 per cent. on the contained tin. These duties are levied whether the producing mine pans a profit or not. Thus a mine which might otherwise pay over 11 per cent. profit cannot be operated under the present impost. On the other hand, railroads and other roads built from the proceeds of the tax allow mining to be carried on in otherwise impossible places.

Forces which upheld production, besides the high prices of the early part of the year, were the efforts of the Dutch to obtain more coolies for working in their East Indian islands, the increased working of the Siamese mines, and the excellent work of the New South Wales dredges.

In 1907 the United States imported for consumption

41,257 net tons of pig tin, valued, as entered, at \$32,074,263, an average of 38.871 cents per pound.

The recovery of tin from scrap, dross, type metal, bab-bitt and other friction metals, bronze, &c., is growing, and should grow even faster. The amount of tin wasted in tin cans that have been used and thrown away and the solder used on them is very great and is an extravagance which from a broad economic view is deplorable. During the year 16 companies recovered tin amounting to 1662 net tons, valued at \$914,404. Of this amount 93 tons was recovered and sold as tin, and 1569 tons went into bab-bitt, bronze, type metal and other alloys. A large but unknown recovery of tin from secondary sources was also made in Europe.

W. L. C.

The Socialist Centerpiece of the New Australian Tariff Killed.

From July, 1907, to the end of May, 1908, the Federal Parliament of Australia was engaged on the new protective tariff, with its bounty system on the Canadian model for the iron and steel industry, and with its extraordinary scheme for denying the advantage of the high duty schedules to manufacturers who did not produce their wares under conditions imposed by the Excise Board as to wages and hours of labor. London was kept advised by the Commonwealth Government of every change in the schedules and with the fate in the Lower House of Parliament of the 238 "requests" for higher or lower duties which were made by the Senate. But the news that the bill had passed all its stages in Parliament had scarcely reached London when there was a cablegram to the effect that the centerpiece of the whole scheme—no protection for manufacturers who would not meet the Excise Board's conditions as to hours and pay for labor—had been knocked out by a judgment of the Federal High Court. Three out of the five judges held that this part of the tariff act was outside the power of taxation conferred upon the Commonwealth by the constitution.

The Australian constitution, like that of the Dominion of Canada, is embodied in an act passed by the British Parliament. Only the British Parliament can amend the constitution of any self-governing colony. Therefore, if the scheme for securing that part of the protection given by the new tariff to manufacturers shall go to their workpeople is to be set up again, one of two things must happen. There will either be an appeal to Westminster for an amendment of the British law, or all the States in the Australian Commonwealth will have to come to an agreement to transfer to the Federal Government certain of the powers as regards taxation and industrial legislation which are now inherent in the States.

The Deakin Cabinet, with which the protective tariff and the excise scheme originated, has been kept in power by the protectionist and the labor members. Labor is stronger in politics in Australia than in any other British colony except New Zealand, and another scheme will have to be quickly devised by the Deakin Cabinet or there will be widespread discontent with the new tariff and its high schedules. It was the socialist centerpiece that carried it through the Lower House of the Commonwealth Parliament, and with this as a useless piece of legislative lumber the labor group in Parliament will naturally exert its power to compel the government either to lower duties or to find a substitute for the excise scheme that will stand the test of the law courts. As it stood, the excise scheme provided for an internal revenue duty on every article manufactured in Australia that was protected by the tariff. The rate was 50 per cent. of the import duty on any given article; and it was only when a manufacturer had complied with the wages and labor regulations of the Excise Board that this internal revenue duty was to be remitted.

The Railroad & Car Material Company, 802 Bessemer Building, Pittsburgh, has recently been appointed selling agent for the line of drop forgings manufactured by the Transue & Williams Company, Alliance, Ohio.

The Conkling Reversing Drive.

A gear driven reversing device designed to take the place of the usual belt shifting arrangement for reversing machinery drives is here illustrated. The first application of this mechanism was made by the manufacturer, the Conkling Company, Chicago, to a rotary laundry washer with satisfactory results, and with some modification it has since been fitted for attachment to ordinary metal planers, as shown in Fig. 1. The objects sought in

nately engage and release the planer spindle by means of a reversing yoke actuated by the contact of the planer dogs with a compound lever connected to the yoke. The yoke is shown in position in Fig. 2, but it removed in the view given in Fig. 3.

The bands of the friction clutches are expanded by screws contained in the cylinders, which are actuated by a lateral movement of the reversing yoke when the platen reaches its limits of travel. The clutch members carrying the gears are loose except when alternately engaged to the internal clutch members, both of which are keyed

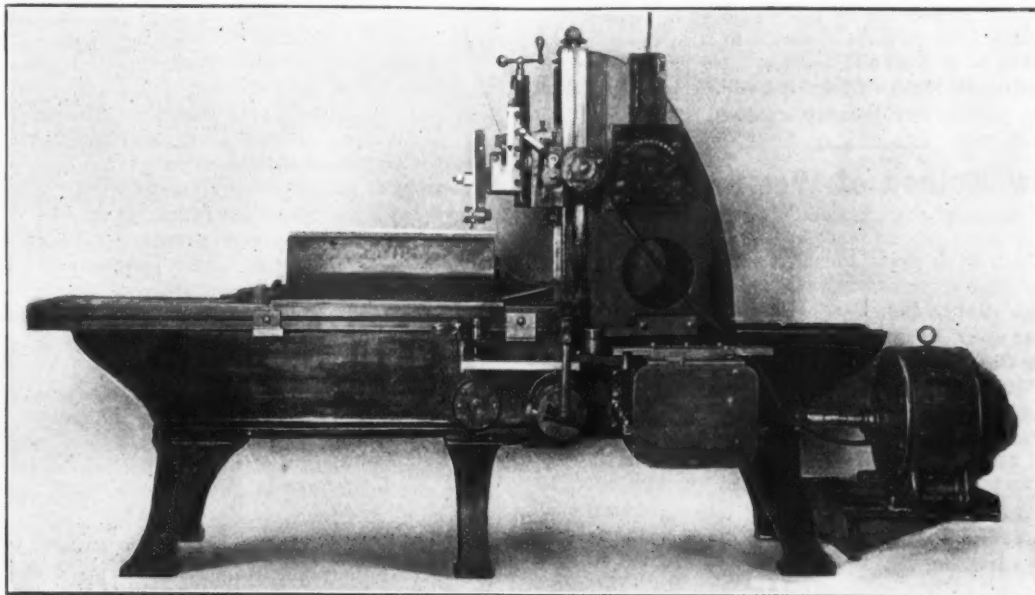


Fig. 1.—A Planer Equipped with the Power Transmission Reversing Drive Made by the Conkling Company, Chicago.

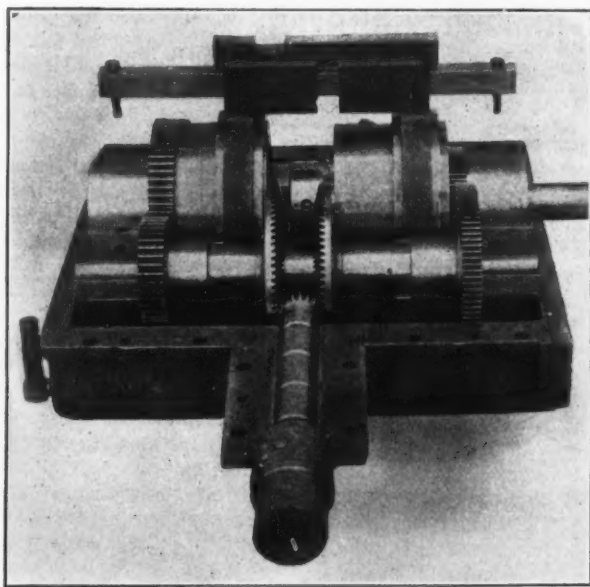


Fig. 2.—Detail of the Reversing Drive with Cover Removed to Show the Interior.

this application were an easy, jarless stop and reversal of the platen, its speedy return, and change of cutting speeds without altering the return speed.

Fig. 2 shows the gear case with the top removed exposing its mechanism. The shaft at the right couples to the planer shaft and the driving shaft in front is directly connected to the motor which, through a bevel pinion between the two opposing bevel gears, revolves them continuously in opposite directions. The backward stroke of the platen is controlled by the right gear through a large spur gear on the same shaft, while the cutting stroke is run in the same manner by the opposite train of gears.

The principle involved in the reversing mechanism is that of a friction clutch, but it is upon the manner of its application that the chief claims of merit are based. Powerful friction clutches fitted within the two cylinders seen at the back of the device in Fig. 2 are made to alter-

to the driven shaft. The gripping of the clutch by the drawing action of a screw is the distinguishing feature of the appliance. It is claimed that the even gradation of pressure thus brought to bear upon the platen driving spindle cushions the shock incident to the sudden stops and starts. On this account it is likewise claimed that higher speeds are practicable, and on planers varying in size from 24 to 40 in., a speed of 200 ft. per minute is attainable on the return stroke.

Though not shown in Figs. 2 and 3, the device is now fitted with two additional gears on the spindle, by which

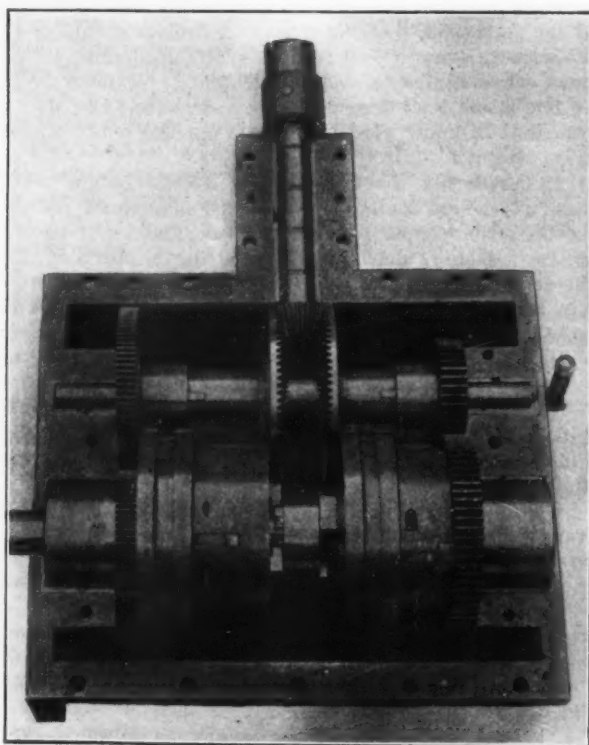


Fig. 3.—Another View of the Mechanism of the Conkling Reversing Drive.

three speed changes in cutting travel are obtained without affecting the return stroke of the platen. The length of stroke can be independently controlled by a small hand lever connected with the reversing yoke lever by which the clutches can be shifted at any point in the stroke.

Being inclosed in a tight fitting case the gears are run in an oil bath, the depth of which can be observed in an oil gauge on the front of the case, as seen in Fig. 1. Although here shown in connection with a motor drive, the device can be belt driven with equal facility by fitting a pulley to the driving shaft. Its adaptability to other machines of various kinds which require reversing is feasible, and it is believed by the maker to be susceptible of such modification in form as would fit it to the peculiar requirements of automobile service. Its capabilities so far have been demonstrated by actual use in connection with metal planers and laundry washers.

A New Method of Wet Excavating.

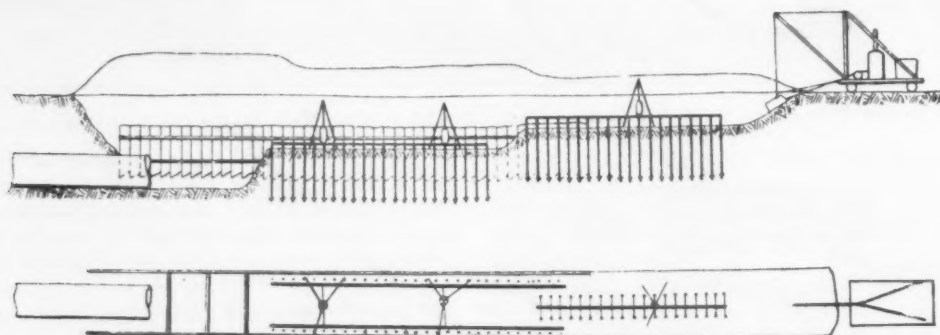
BY C. M. RIPLEY, NEW YORK.

Although Gary, Ind., is scarcely two years old, it already has over 10 miles of paved streets, 20 miles of gas mains, an electric light plant, full telegraph and telephone service, both local and long distance, and now an elaborate system of sewers about 20 miles long is nearing completion. The sewer system will cost about \$350,000, and about half of this contract was let to the Green & Sons

length of each section) the rear section was removed and placed in front, and so on. Gate valves at frequent intervals made it possible to do this without shutting down. Thus the pump could remain in one position until the excavation had been carried forward approximately 120 ft. The vertical pipes leading down to the well points had elbows at the top, and a 4-ft. length of hard wire lined rubber suction hose made the connection to the main header. Each 22-ft. length of this header had 11 cross valves, with two bushings each to take the rubber connections.

After the draining had been carried on for a couple of hours in the first of the six sections attached to pump No. 1, wooden sheeting was driven by mauls on both sides of the sixth section. Then excavating was started by the shovelers and carried down about 6 ft. more. Next the well points attached to pumps Nos. 2 and 3 were jettied down another 16 ft., so that they penetrated below the bottom of the lowest excavation and 6 ft. below the bottom of the sheeting. Thus the total depth of the trench was made up of the following stages: 8 ft. down to water level by bucket excavator, 6 ft. near pump No. 1 by shovelers and 16 ft. under pumps Nos. 2 and 3 by shovelers. The entire excavation was comparatively dry sand and would stand at $\frac{1}{2}$ to 1, although if wet it would not stand better than 15 to 1.

The second and third Emerson pumps had their suction pipes connected in parallel—that is, they both drew water from the same piping system, which included for each pump one 4-in. suction hose directly below the pump, one leading to the right and one to the left. This arrange-



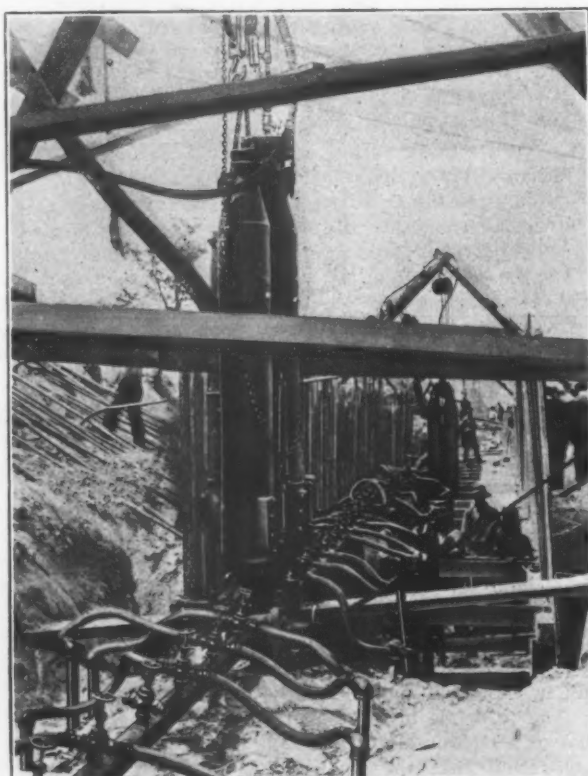
Elevation and Plan Showing the Three Stages of Excavation.—Each Arrow Represents a Pair of Well Points.

Company, contractor, of Chicago, Ill. This article deals with the methods employed in overcoming the difficulties of the quicksand, which will flow in from a radius of 15 ft. when an excavation 1 ft. deep is left unconfined. This sand, when dry, is so impalpable that it is ankle deep. So low is the land, also, in comparison with Lake Michigan, that in many places there are surface ponds 3 and 4 ft. deep.

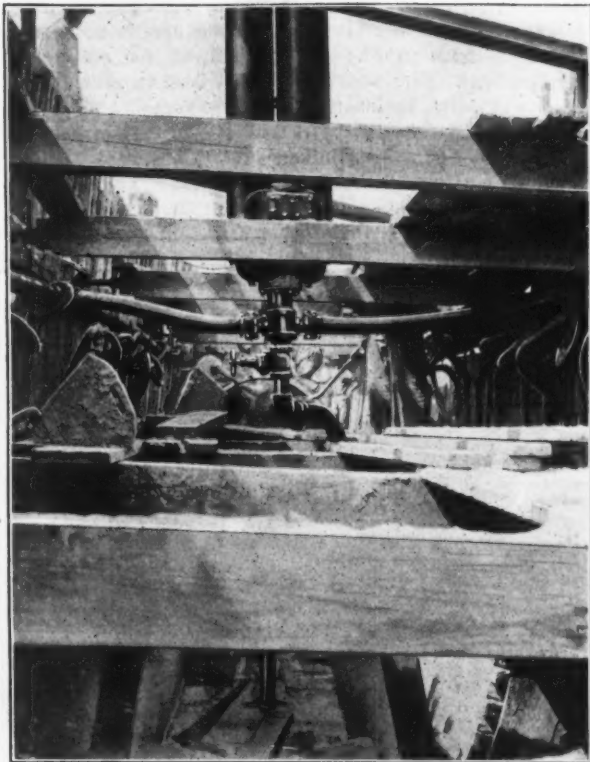
In advancing the trench three vacuum pumps were used. The first drained the excavation immediately adjacent to the scraper bucket excavator, and was followed by two others which increased the depth drained. To the suction of the first pump was connected a horizontal 4-in. pipe and from this branches were taken to 2-in. well points 3 ft. long driven in a double row near the center of the trench. This arrangement allowed the sheeting to be driven on either side. This pump drew water from 132 2-in. well points sunk 16 ft. below water level, one 4-in. well point sunk 16 ft. below water level, and one 4-in. suction pipe with strainer placed on the front end of the horizontal header and draining surface water.

The pumps were all hung by chain falls from A frames. The first A frame was mounted on rollers placed on planks to facilitate its being moved forward as the excavation progressed. The sheeting prevented the others being so mounted. Each vacuum pump had a 5-in. suction and a 4-in. discharge pipe, and a 725 gal. per min. capacity. The pumps were made by the Emerson Steam Pump Company, Alexandria, Va., and are designated as the No. 3 size.

The 4-in. horizontal header mentioned in connection with pump No. 1 was made up of six sections joined by flanges. As the work progressed 22 ft. (that being the



A View of the Work at the First Stage.



A View of the Work in the Third Stage.

ment was effected by means of a four-way connection in the suction of each pump and about 1 ft. below it. The two pieces of 4-in. rubber hose branching off horizontally from the four-way connection and at right angles to the trench were only long enough to connect through a tee with 2-in. iron pipes, also horizontal, which extended along the sides of the trench just inside the sheeting. To the latter pipes the 1½-in. well points were connected and jetted down as close as possible to the sheeting, so that the shovelers could work between the vertical drain pipes without hindrance.

Gate valves at frequent intervals allowed considerable flexibility, so that lengths could be shifted from rear to front as the digging proceeded. Another advantage was that the pumping could be made stronger in any part of the excavation where specially large quantities of water were encountered. When necessary the combined capacities of both pumps could be concentrated on those well points in the wettest part of the work by closing the gate valves and shutting off the vacuum from other parts of the trench pipe line. This would have been impossible with an ordinary sump pump, for as the work went ahead new sumps would have had to be dug and braced and additional pumps hung at a considerable total expense. The idea of a distributed suction, as used at Gary, makes the pumping more efficient than the old sump method, because the water is only drained from the exact location of the excavation instead of from a circular area, mostly outside the limits of the trench, and within a certain radius of the pump.

Two men were timed while using a 1-in. pipe for jetting down the well points. The water pressure was about 100 lb. per square inch, and the two men sunk four 1½-in. well points 16 ft. in 1 min. This obviously does not include the time of making connections with rubber hose to the horizontal 2-in. headers.

The numerous connections between flanges, rubber hose, ells and suction pipes could be made absolutely air tight, and with the high vacuum inside a considerable amount of air found its way into the suction of the pumps. This fact, however, did not seem to hinder the action of these pumps, owing probably to the large volume of the chambers in which the condensed steam forms the vacuum. G. H. Olmstead, 407 Dearborn street, Chicago, who furnished most of the pumping equipment, stated in an interview with the writer: "A centrifugal or reciprocating pump could not be used under these conditions without needing frequent priming owing to the air in the suction. Moreover, the sand which comes in with the water would necessitate a frequent renewal of

the valves, brasses, &c., a trouble which we have not experienced, as is proved by an uninterrupted run night and day for four months."

It is interesting to contrast this vacuum method with the pneumatic caisson method of penetrating water bearing strata. In the latter compressed air forces the water downward away from the sand or other soil, and the excavation can frequently be carried down below the edges of the caisson. In this new, or vacuum, method the digging is carried 2 or 3 ft. below the bottom of the wooden sheeting—and this in very fluid material—showing that the draining of water from below is as effective as the displacing of the water from above.

The Hebb Coke Drawing Machine.

Since the publication in *The Iron Age* of April 23, 1908, of an article descriptive of the history and the latest design of the Hebb coke drawing machine for beehive coke ovens, the machine has been in continual operation at the Second avenue plant of the Jones & Laughlin Steel Company, Pittsburgh, and data have been obtained on points which only greater service could determine. Experience has so taught the operators that now all the coke is extracted from the oven, leaving it in shape to be recharged immediately. Based upon the earlier work, it was estimated that the Hebb machine would draw an average of five ovens an hour. The actual time is from 8 to 9 min. per oven, which allows the operator 15 to 20 min. to take his time to oil up the machinery, move his machine and the car into which he is loading, and still have time to spare. The construction of the machine being very strong and simple, there have been no break downs. This is important, since after the installation of the machine the hand operators are gone, and in the absence of a crew the output of the plant depends upon the machine. Continual operation has shown not only that there is a minimum of wear and tear on the machine, but that the oven itself is not injured in any way. Operating expenses, including power, labor, maintenance, &c., are very low, and it has been ascertained that the coke is more uniform and larger than that obtained by hand drawing.

International Scientific Symbols.

At the request of the British Electrotechnical Commission's Subcommittee on Symbols, Miles Walker (The Cottage, Leicester Road, Hale, Altrincham, England) has sent out to the scientific and technical papers suggestions for a number of new symbols to represent physical quantities. The purpose is to invite criticism and discussion in the hope that it may lead to definite action on the part of those in authority to make some such symbols standard in the different countries.

The symbols so far proposed deal principally with electric and magnetic quantities, but it is believed that the system might be extended with advantage to embrace other important quantities in physical science. In the examples which follow it will be noticed that effort has been made to choose a symbol which suggests some association with the quantity it represents. For example, for temperature the sign J is suggested, this being a simple outline of a thermometer; for force the sign f is one that might be modified to represent various forces, for instance, the sign E for electromotive force (the conventional representation of lightning), and the sign M for magnetomotive force.

Where the sign J is chosen to represent temperature in any unit or according to one of the standard thermometer scales if it was desired to express temperature in degrees centigrade above absolute zero another slightly modified sign might be used such as J_c .

It is emphasized that these are merely suggestions, and that the commission which is now considering it is anxious to have the subject widely discussed and improvements recommended by those interested.

It is hoped that writers, printers and readers may give this matter their attention and communicate through the papers or direct to Mr. Walker expressing their views, so that the commission may be advised of the probable chance of such symbols being appreciatively received.

A Newton Special Cylinder Boring Machine.

The machine illustrated in Fig. 1, built by the Newton Machine Tool Works, Inc., Philadelphia, Pa., is especially designed for boring at one setting the cylinder or cylinders and piston valve chamber of any class of simple or compound engine. Fig. 2 shows one class of boring done on the machine. The cylinder, after being planed, is set

facing arm, which can be engaged or disengaged without stopping the spindle. On each facing arm is mounted a tool slide with in and out adjustment for setting the depth of cut. This tool slide has a feed in either direction on the arm, by means of a star wheel and pins. The spindle is fed forward by a trolley operated by a screw and nut, and has a continuous motion of 140 in., so that it can be entirely withdrawn for removing cylinders without stopping to take a double grip on the bar.

Six changes of feed in either direction are supplied to

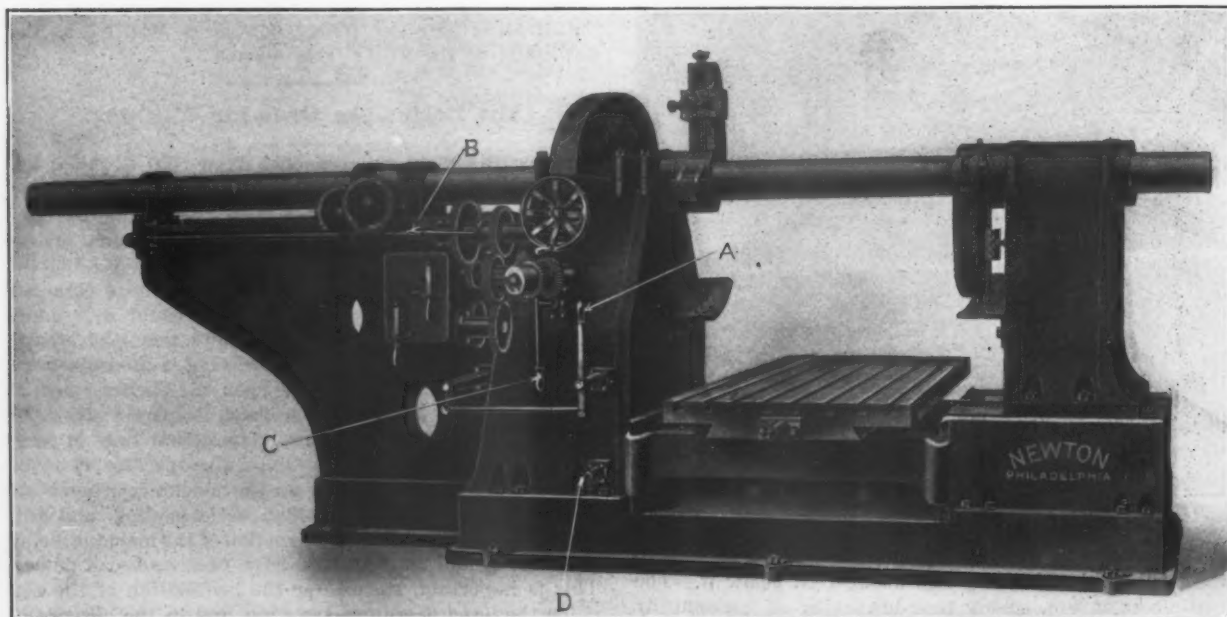


Fig. 1.—A Special Cylinder and Valve Chamber Boring Machine Built by the Newton Machine Tool Works, Philadelphia, Pa.

on parallel strips on the table, and the high and low pressure cylinders and valve chamber are bored successively by manipulating the vertical, longitudinal and traverse adjustments of the machine. As there is no re-setting the alignment of the cylinders is insured, and by using gauges the proper centers are maintained.

The spindle of the machine is 7 in. in diameter and is made of 0.5 carbon steel. It has two splines for driving

the spindle, amounting to 1-16, 1-10, 1-6, 1-3, 2-3 and 1 in. per revolution of the spindle, and quick power motion in either direction is supplied at the rate of 10 feet per minute. The spindle has a speed range of from 4 to 15 rev. per min., and is operated either by a four-step cone or a 20-hp. 3-to-1 variable speed motor. The drive is through a clutch, so that the spindle can be stopped and started without stopping the motor or countershaft. A flywheel is attached to the motor to overcome the shock of engaging and disengaging the clutch.

The outboard bearing is adjustable by a rack and pinion, to give a minimum distance between the facing arms of 45 in. and a maximum distance of 60 in.

The cross adjusting table is fitted with steel plates on the top, which provide steel wings for the T slots and prevent their breaking out, and maintain the alignment of the top of the table. This cross adjusting table has hand or power adjustment or both, as desired, and is adjustable longitudinally on the knee to bring different lengths of cylinders central between the facing arms.

The knee is accurately fitted between the bed and is supported by four screws, each 6 in. in diameter, which support the table and are used to raise and lower it. The minimum distance from the center of the spindle to the top of the table is 43 in. and the maximum distance 51 in. The table is raised and lowered by power and has a fine hand adjustment.

The method of driving and feeding conduces to a smooth cut in the cylinder, and is especially valuable for boring the valve chambers, as the steady motion of the worm drive and screw feed prevents gouging at the bridges, which is a serious fault as it permits steam to escape around the valve chamber bushing.

In Fig. 1 the reference letters designate the controlling handles. Lever A is used for starting and stopping the spindle motion; lever B when thrown toward the feed box engages the feed and when moved toward the hand wheel engages the quick traverse. Both of these movements are reversed by the lever C. Hand adjustment of the table vertically is accomplished by a ratchet through the shaft D. Another lever not shown on the engraving is used for raising and lowering the table by power. When desired levers A, B and C are the adjust-

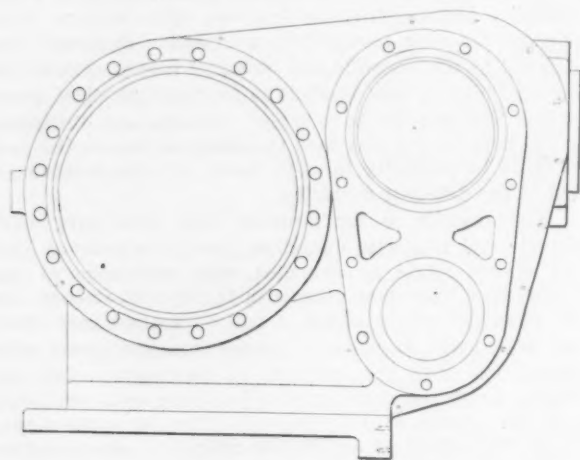


Fig. 2.—An Example of a Locomotive Cylinder Casting That Can Be Bored at One Setting on the New Machine.

and is accurately ground and fitted in sleeves. The sleeve in the main pedestal is used for driving the spindle by means of a phosphor bronze worm wheel 41 in. in diameter and a hardened steel worm with roller thrust bearings. The worm and worm wheel are inclosed and run in oil. The other sleeve is fitted in the outboard bearing and is keyed to and revolves with the spindle. Both of these sleeves are lapped in the hole for the spindle to insure a proper bearing, and are ground on the outside and fitted in brass bushings which are accurately scraped. A cap bearing is provided to compensate for wear.

To each of these sleeves is fitted a special design of

ing hand wheel are duplicated on the outboard bearing.

It is possible on this machine to bore a simple cylinder in 5 hr. An auxiliary table is furnished which can be swiveled at an angle of 20 degrees for boring inclined cylinders without requiring an additional setting.

A Cleveland Grab Bucket Mono-Rail Crane.

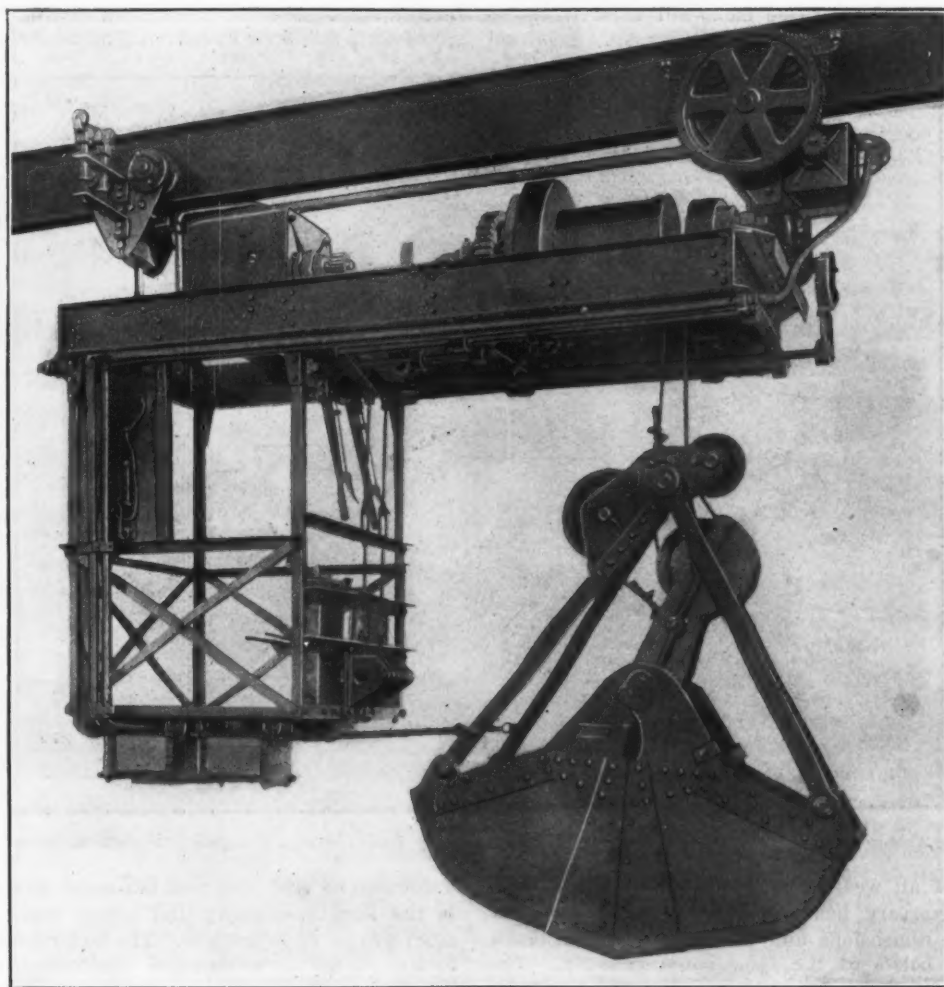
The mono-rail crane illustrated is for use on an I-beam runway and was designed and built by the Cleveland Crane & Car Company, Wickliffe, Ohio, under the direction of Thos. B. Davis, chief engineer. It is provided with swivel trucks so as to enable it to go around a curve of short radius, and is regularly furnished with a two-line grab bucket.

Especial attention is called to the fact that both the

ping the bucket should his attention be interrupted at any time.

To relieve the hoisting clutches of undue wear during the process of lowering the bucket, the hoisting drums are provided with band brakes controlled by foot levers from the operator's cage. The friction clutches used for raising the load act as safety devices in case of over-hoisting, since the clutches are so designed that they would slip before the stresses had reached a dangerous point.

The intermediate hoisting shaft is extended to the rear end of the operator's cage, and is provided with a drum that rotates at about twice the peripheral speed of the hoisting drums. This drum has attached to it a rope which extends to the grab bucket and is used for steadying it, not only while it is being elevated, but after the bucket has reached the required height and is being carried to its destination. The rope is continuously kept



1617 A Grab Bucket Mono-Rail Crane for Coal Handling Built by the Cleveland Crane & Car Company, Wickliffe, Ohio.

hoisting and holding drums are operated by one motor, by means of friction clutches controlled from the operator's cage. The lowering of the bucket and the operations of opening and closing it are effected by gravity. This arrangement is considered preferable to one involving separate motors for the hoisting and holding lines, since the rotative speed of the armature of a series motor in lowering the load will not exceed twice the hoisting speed; whereas with the gravity fall any speed of lowering can be obtained, as the motor is inoperative when the bucket is being lowered or opened. This is an important item, especially on high lifts, and its virtues are at once apparent.

After the bucket has been lowered to the stock pile or car and is closed, the clutch for the holding drum is engaged and both drums are utilized for lifting the load. When the bucket has reached its highest position it is sustained by a self-lubricating mechanical brake of the double friction type, thus eliminating the necessity of the constant care of the operator and the liability of drop-

ping the bucket should his attention be interrupted at any time. The strength of the springs is such as to exert a pull on the steadying rope of from 250 to 300 lb. while the bucket is being raised or lowered.

The racking motor is attached to the driving truck and its speed is regulated by a drum type controller located in the operator's cage. The travel of the hoist may be made to suit almost any condition, but in ordinary practice a speed of from 300 to 500 feet per minute will be found sufficient for coal handling plants, especially where there is a curve or bend in the I beam along the runway.

The treads of the track wheels for the driving and trailing trucks are made spherical instead of cone shaped as is sometimes done, the object being to eliminate friction as far as possible, as it is well known that a cone shaped wheel running on the lower flange of an I beam

will have rolling contact along one diameter only, while the other parts of the wheel will be in sliding contact and subjected to wear as well as imposing greater load on the racking motor.

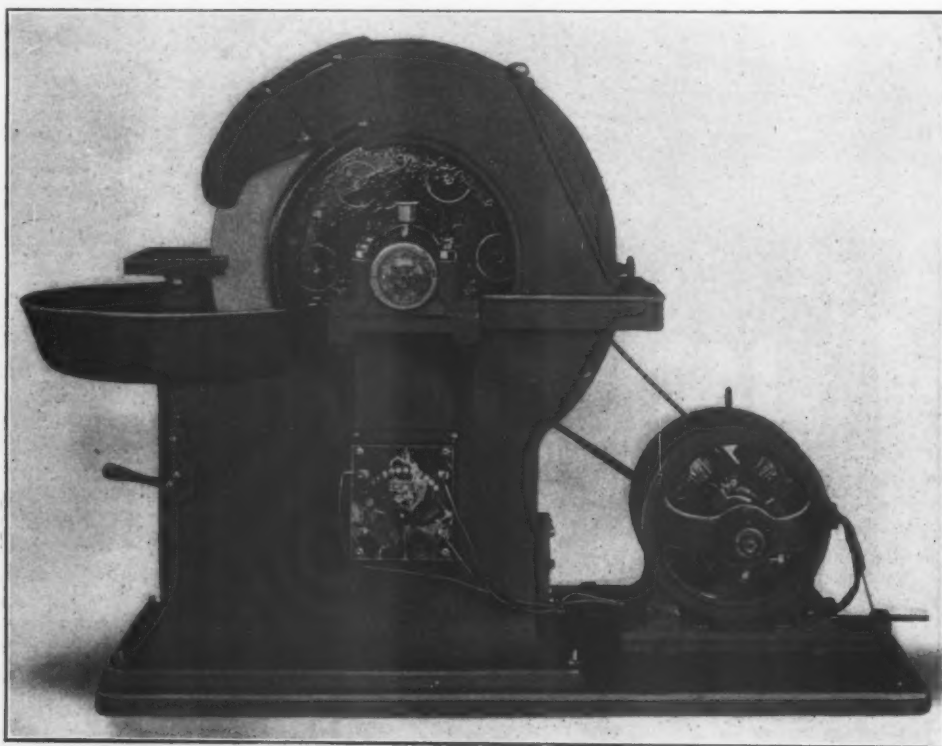
While compactness is desirable, it is considered by the designer to be of secondary importance to accessibility, and although the first has been obtained in a remarkable degree, it was at no sacrifice of the second characteristic. In fact, the result is a creditable combination of the two features.

None of the points so far mentioned are of any greater importance than ample strength and reliability, and no hoist, however ingenious, convenient or commendable in other particulars, will be a success unless it is mechanically sound and sufficient for its work. Since a coal handling crane of this type is desired principally for light and medium loads and is intended to be operated by unskilled workmen, it must be capable of withstanding without injury large overloads and inconsiderate handling. The design of the mono-rail hoist is favorable to the making of all parts very strong. This and

The Safety Emery Wheel Company's New Motor-Driven Tool Grinder.

Herewith is illustrated a new form of motor driven wet tool grinder recently placed on the market by the Safety Emery Wheel Company, Springfield, Ohio. After a careful study of the various methods for transmitting power from the motor to the grinding wheel, the one as illustrated has been adopted because it offers the following advantages in connection with this type of grinder: The motor is easy of access; it can be fully inclosed to protect it from injury; a clear space is left in front and at the sides of the grinder; the renewal of the wheel is facilitated; the belt tension is readily adjusted; and the belt connection prevents any undue shock on the wheel from being transmitted to the motor.

By properly proportioning the sizes of the pulleys it is possible to use any standard motor, thus avoiding the additional cost of special windings, &c. Any of the company's standard sizes of grinding machines can be supplied with this style of drive. The motor is mounted on



A Motor Driven Wet Tool Grinder Built by the Safety Emery Wheel Company, Springfield, Ohio.

the making of all wearing surfaces larger than usually considered necessary has been found possible without exceeding the dimensions and weight that is considered standard for hoists of the same rated capacity. The hoist of the type shown herewith was designed to handle from 20 to 30 tons of coal per hour from a car or stock pile about 150 ft. distant from the power house, with a vertical lift of about 60 ft.

The advantages claimed for this class of coal handling machinery are; Low cost of handling the material, as only one man is required to load the bucket, carry it to its destination, empty it and return it to the point of starting; low cost of installation; a low maintenance charge on account of the small number and size of the working parts; large area served; and low power consumption.

The Canonsburg Iron & Steel Company, Canonsburg, Pa., is making some improvements to its plant, including additional boilers of 300 hp. capacity and a new roofing department with corrugating machines, &c. The company expects to have everything in readiness so that it can resume operations early this month.

G. L. Pollock, purchasing agent of the Wabash-Pittsburgh Terminal and West Side Belt railroads, Pittsburgh, will soon place orders for 12 new locomotives, to cost approximately \$204,000.

a subbase of cast iron and is placed where its position is the least obstructive and where there is the minimum danger of injuring it. The belt tension is adjusted by moving the motor on rails. The motor starting box is attached to the machine as shown.

The grinding of long tools, bars, &c., can be accomplished by opening the door in the rear of the machine. The motor is shielded from any water which may spray over it during this operation. There is no tendency to topheaviness with this style of motor mounting, as all of the weight is near the base. Any make of motor operating on either direct or alternating current can be applied.

The Alliance Machine Company, Alliance, Ohio has received a contract from the War Department for building two 12-in. disappearing gun carriages, the contract price being \$72,000, and an order from an automobile builder for eight steam hammers with a capacity of from 1000 to 4000 lb. In addition to these a number of smaller orders have been taken recently. The company reports that its July bookings were larger than in any previous month of the year, and that inquiries are far more plentiful than a month ago, some of those now pending being quite large. The company's plant is still operated night and day, and the output in the first six months of the year exceeded that of the first six months of 1907.

The Brown Ores of Alabama.—V.

BY WILLIAM B. PHILLIPS.

The exploitation of a brown ore property calls for the exercise of considerable experience and skill. The fact that the ore does not lie in regular veins, which may be explored both laterally and vertically with precision, interferes with prospecting. The usual procedure is not applicable, and to a considerable extent each deposit has to be judged for and by itself. In many cases the ore does not outcrop at all, but is covered with drift and clay, sometimes even by rocks which have been crowded in above the ore. For the most part, however, a brown ore deposit is indicated by the presence of float ore, either in gravel or in lumps, and by the deep purplish color of the surface clays.

Washing the Overburden.

If the deposit lies on the slope of a hill and toward a drainage basin the overlying clays may be of considerable thickness, from 10 to 30 ft., and this overburden has to be removed by steam shovel or by hand. Sometimes it will pay to wash this overburden, for it may contain fine ore visible only after washing. Repeated tests of the ground are necessary, and for this purpose a set of screens and a tub of water are required. One hundred lb. of the material should be taken and washed carefully over two screens, one of $\frac{1}{4}$ -in. and the other of $\frac{1}{8}$ -in. mesh. The material remaining on the two screens should be air dried and weighed, and a simple calculation will give the amount of ore obtained from each screen, and a close inspection of it will determine, with a fair degree of accuracy, its quality. The total weight of the material on both screens will give the percentage of ore, chert, &c., from the 100 lb. of raw material. By then taking 5 or 10 lb. of each size and picking out by hand the impurities one can determine what the yield of commercial ore will be from 100 lb. of "bank" dirt.

A better plan still is to use a small hand jig for jigging the material on the screens, and the following form is suggested, having been found to give good results: A box 12 in. long, 8 in. wide and 6 in. deep is provided with a convenient handle so that it may be moved up and down in a tub of water. The bottom is covered with a wire screen of 10 meshes to the inch, and this is fastened on with strips so that it may easily be removed and another put on. The material to be jigged is placed in this box, in water, and the box is given an up and down movement so as to force the ore to the bottom and the chert, sand, rock, &c., to the top. The action of a slow moving or a rapid moving jig can be closely approximated in this manner and after a few trials almost any one can operate it successfully. A quick motion down and a slow motion up, or *vice versa*, can be used, according to the material to be tested. A single experiment in the use of this small jig may be given to show what it will do. A certain car of small ore was sampled and 100 lb. taken. This was divided into 10-lb. lots and several of them jigged separately, so as to arrive at a fair average. Theunjigged ore carried 37 per cent. of metallic iron and the jigged ore carried 45 per cent. of metallic iron, an increase of 8 points. The ore with 37 per cent. of iron was not salable; the other was worth \$1.50 per ton, f.o.b. mines. Wire screens of different sizes may be used on the bottom of the box so as to test the effect of the different sizes, &c. While this hand jig is best used with dirt containing fine ore, yet it may be used on material passing a $\frac{1}{2}$ -in. screen, or even coarser material.

It often happens that one is called on for advice concerning the treatment of brown ore after it has passed the washer. In order to answer such inquiries intelligently he must know the exact mixture of materials with which he has to do, the fineness of it and the proportion of ore to chert, sand, rock, &c.

Exploring a Brown Ore Deposit.

For exploring a brown ore deposit it is recommended that the area be cross sectioned into 1-acre lots and a simple topographic survey be made with a compass and hand level, or with the new Verschoyle compass and transit, a most convenient instrument. At least one test pit should be put down on each acre, and more than this

when the circumstances demand it. Test pits are much better than borings and they can be put down for \$1 to \$1.50 per foot, 4 x 4 ft., using a windlass. It is best to construct the windlass so that it may easily be taken down with a monkey wrench and moved from place to place. Loose planks will serve for the platform, but the framing of the windlass itself should be held together with bolts, not nailed. In arranging the drop of the windlass it is well to have the handles at their lowest point touch the leg just above the knee.

The earth from each pit should be closely examined and an accurate record kept of the nature of the ground, kind of clay found, thickness of each kind of clay, whether the ore is mixed with chert or with fragments of sandstone, limestone, &c. The ore-bearing clays should be washed over a screen, as already mentioned, and the percentage and quality of the ore approximated.

Many a brown ore deposit has been condemned because of the inefficient manner in which it was prospected. Brown ore treatment should not be the wasteful thing it really is in many cases. There is known to the writer a brown ore plant where the accumulation of tailings amounts to about 30,000 tons. These tailings carry 30 per cent. of iron. They are already in good condition for jigging or for treating over a Wetherill separator or machine of similar type, such as the Payne.

But one cannot know what to do with a brown ore deposit until he knows the nature of the material he has to handle. It is freely granted that this may and often does change from day to day, but these changes are already known and provided for if the ground has been thoroughly prospected. In other words, it is maintained that if one enters upon the brown ore business with all of the information that may be obtained the risks are greatly diminished. The trouble with many deposits is that they have been opened without this information, and when the obstacles are met (they always will be met) the deposit is condemned, the machinery withdrawn and another cry raised against the treacherous nature of brown ores. It is held that if the same care be given to prospecting brown ore beds as is given to other kinds of mining, previous to the installation of costly machinery, houses, equipment, &c., there would be a marked decrease in the number of failures.

The Relation of Cost to Value.

It may be urged that ore which sells for \$1.50 a ton at the mines cannot stand much expense, and this is also granted, if the present system is to be continued. It has also to be remembered that the base price is \$1.50 a ton for ore that carries 45 per cent. of iron, and that for each unit above the base the price increases by 10 cents. An ore of 50 per cent. of iron is worth \$2 a ton, as against \$1.50 for a 45 per cent. ore. It is to be remarked that a brown ore deposit which will yield 45 per cent. ore regularly from the ordinary washers is not to be found every day. Over a period of one month shipments from the same mine have been known to vary from 11 to 26 per cent. in silica and from 37 to 47 per cent. in iron. If any further comment on the irregularity to which brown ore, as now prepared, is subject is needed it can be supplied from the writer's notebooks.

Just here we come upon one of the obstacles to the further extension of brown ore mining—the irregularity of the ore as shipped. Not all of the mines are subject to this complaint (there are some notable exceptions), but that this irregularity does exist no one who has had intimate acquaintance with the business can deny. In some cases this objection has been removed, to a great extent, by crushing the ore after the first preliminary washing and then washing it again. This procedure is rendered necessary by the clay inclusions in the larger ore lumps, but it does not affect the chert. Unless the ore itself is sandy, high silica means chert, and high alumina nearly always means inefficient washing and retained clay. It must always be borne in mind that there are two classes of impurities to be removed from brown ore, first the clay, which can be removed by washing in the ordinary log washer or the disintegrating screen, and, second, chert (with fragments of sandstone, limestone, &c.), which can be removed only by a thorough system of jigging, preceded by a proper sizing of the material.

THE IRON AGE

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Hot House Prosperity.

It is a fair inference that if an entire business community can be frightened into paralysis, as was ours last fall, and if sentiment played an important part, then concerted efforts to better the temper of the timid ought to contribute powerfully to recovery. At first there was a disposition to deny flatly that there were any causes for alarm and to attribute the panic to the collapse of an outrageous speculation in Wall Street of which the country at large was virtuously free.

When the gravity of the situation was finally borne upon those who had held that view; when it was realized that, however large a part of the banking interests of the country may have been to blame for cowardice, some groups of great financiers had acted courageously to protect their own interests and those of the country at large, then a movement spread to stimulate business by a systematic publicity of optimism, both volunteer and organized.

Much of what was done was hysterical, and accomplished little more than to make those ridiculous who bawled so loudly. A much more dangerous class comprised those who coupled with their shouting promises to act which they either quietly ignored or carried out only in a half hearted way. Some were insincere when they joined in the movement, working on the theory that by influencing the sanguine it would be for the general good and incidentally help them. They were willing to persuade others to take the risks involved, but they themselves proposed to keep a clear head and act upon a judgment sounder than that of the emotionally inclined. There has also been some downright lying, for the good of the cause.

In other words, the prosperity agitation has been a curious mixture of honest efforts to convince and dishonest attempts to fool. The former has no doubt had some measure of success, but much more would have been accomplished if the movement had not been tainted by the latter. It is true that those who are sacrificing themselves for the common good in sincere efforts to allay distrust and cultivate optimism in business circles repudiate those who have discredited and hurt the movement until it may be aptly termed "hot house" prosperity.

The gap between the receipts and expenditures of the National Government has widened instead of diminishing. July, the first month of the new fiscal year, closed with a deficit of \$24,868,544, or nearly \$1,000,000 for every business day of the month. When it is considered that nearly \$5,000,000 in Pacific Railroad payments was sent

In advance and operated as an "extraordinary receipt," it is seen that the true deficit on the operations of the month was approximately \$30,000,000. The immediate outlook for national revenues is so unfavorable that a deficit of \$20,000,000 in August is deemed quite probable. It is fortunate that the Treasury still has a comfortable surplus available. In the approaching revision of the customs and revenue laws it may be necessary to provide for an increase in the annual revenue of \$75,000,000 to \$100,000,000 in order to maintain even a small surplus.

The Cost System to Assist Workmen.

The point has been raised as to whether, when a record of the time required to do a certain piece of work exists in a cost system, a workman is entitled to know that record when a similar task is given him. Under modern cost systems, a record is kept of the time and cost of each part or operation on the part for each individual lot that goes through the factory. Cost of material is also entered, but the separate item of labor stands out distinctly by itself, so that when a new lot, say of machines, is to be manufactured, an intelligent and in fact almost exact idea of its labor cost may be had beforehand. The various pieces which go to make up a part for each machine are turned over to a workman and he proceeds with the task required. The question is, shall he be told the time per piece at which his predecessors on a similar job turned it out?

Considered from the personal side of the mechanic, various elements enter into the subject. He may be ambitious from love of his work or so slothful as to be indifferent with regard to the results shown, or he is stimulated by fear, if this term may be applied to the nervous condition of mind which impels some men to do their best work in order that they may be sure to retain their positions. A certain proportion of workmen always do their best, because the spirit of ambition is strong within them. From this high degree of intellectual exaltation the incentive to work shades down to fear and to the laziness of sloth or the inefficiency of moral perversity.

The really ambitious mechanic does not need to know the time in which a fellow workman has accomplished a task. He will go at the work with a will, bringing to bear all the application and skill in his makeup. But there is no doubt that the movements of most men will be quickened by the knowledge that some other person has done the work in a specified time, and by the realization that in the record of the job any increase in time and resultant cost of production will be put down with name or shop number of the workman against it. In a typical example of this case, a man was given a certain job to do, the record of which was 47.8 min. per piece. He knew nothing of the record. The foreman, noting that the work seemed to lag, asked him how many pieces he had finished, and a simple calculation showed that up to this point he had taken 63 min. per piece. He was told the record and by whom it was made. The characteristic remark was that if Blank could do the work in 47 min. he thought he could, and he did. So rapid was his pace that in spite of the slow start he finished the lot with an average equal to the record.

It is argued by those who believe in taking the workman into the confidence of the cost department that in a great majority of cases a greater speed is obtained. There is, of course, the class of men who will not work faster than they are compelled to do, and occasionally a man is found in that class who is a really capable work-

man. Give him a record of work and he may feel compelled to equal it, but he will not strive to better it. Then again, there is the restrictive influence of certain union rules which may compel those who are too ambitious or proficient to hold themselves back that those who come after may not be set too fast a pace. Probably in such cases ignorance of the record for the work would bring fully as good results. But it is maintained that these are the exceptions to the general rule.

Another reason is given for permitting the record of a job to be known to the man to whom a similar task is assigned. It happens frequently that conditions attending the work are modified. The designers may have made changes, such as lengthening a spindle or a bushing; the new castings furnished may be unusually hard, or steel castings may have been substituted for iron, or any one of a number of other possible variations may crop out. The foreman is, of course, presumed under the modern theory of manufacturing to know the record of the work that he gives out, or some other means is supposed to be provided for observing with intelligence the time of production while it is going on. But the workman can co-operate better if he has the basis of previous records to guide his judgment.

In the great majority of manufacturing establishments, the workman does not receive the information, except, perhaps, when his showing for a job proves poor by comparison. Doubtless the chief reason for this is that many manufacturers have not sufficiently developed their cost systems to have them always available for records, while those who have first rate systems have not provided means for watching the progress of work with records in mind. There is a lack of co-operation between the cost department and the works. The costs find their way to the proper department, but not until the work is done. Any discrepancy between the cost of a lot of parts and the record for the work must come to some one's attention when the new cost is entered on the card, but then it is too late to do more than perhaps prejudice a workman's standing or discover the remedy after unnecessary expense has been incurred. When the cost goes to the foreman and from him to the workman before the work is begun, there would seem to be a far less chance for unnecessary expenditure of time of the workman and of the machine which he operates.

The New Freight Marking Rule.

Shippers of certain classes of freight claim to be somewhat seriously affected by the new rule of the transportation companies governing the marking of less than carload shipments. As now in effect, this rule requires that "each package, bundle or piece of less than carload freight must be plainly marked by brush, stencil, pasted label or securely fastened tag, showing the name of consignee and the name of the station, town or city, and the State to which destined, and the name of the county if there is more than one place of the name in a State." This rule, details of which were published in *The Iron Age* of May 28, is aimed at the common practice of marking certain classes of freight with initials, symbols or hieroglyphics.

One of the best illustrations of difficulties encountered in the enforcement of this rule is found in merchant steel and iron, too large for convenient and economical bundling, yet consisting of many pieces. It can readily be seen that a shipper of merchant steel or iron may be put to considerable expense to have each piece marked with brush or stencil with the full name and address of the consignee. It requires a long time to mark even half a

carload. A tag or a pasted label may be made to apply in such cases, though up to the present time some leading railroads have not taken this view of the matter.

Railroad men themselves are wondering what rule will apply in certain classes of bulk freight. A less than carload lot of brick is used as an extreme illustration. Certainly the transportation companies would not compel a shipper to mark each brick of a shipment with the name and full address of the consignee, nor to paste a label or tie a tag on each. Small lots of other freights would be similarly outside the rule from their very nature. Therefore it may be argued that what should apply in these extreme cases would with equal justice apply to such shipments as steel bars or rods, the difference in character being only relative.

The transportation companies state that they have good cause for the action. Losses in transit constitute a serious item of cost, a large percentage of which is attributed to the custom of marking freight with symbolic characters, the key to which is presumed to be in the bill of lading. No doubt there is some justice in this contention, but the shippers assert that the fault is not with the symbol system, but with lack of system on the part of the railroads and the carelessness of their employees.

It is to be presumed that the matter will adjust itself in practice. A rule is usually somewhat elastic, and it is to be hoped that the railroads will see to it that no exceptional hardship is imposed upon their customers. If this proves to be the attitude of the transportation companies, shippers will become reconciled to the new order of things. If, as the railroads maintain, their losses in transit due to the old system of marking foot into a noticeable percentage of gross earnings then there must have been much friction from this cause between the shipper and his consignee over delays and failures to deliver goods as agreed. A rule that would eliminate this trouble must have its advantages to others than the transportation companies, provided the latter assume a reasonable attitude in its interpretation.

Accidents in the German Machinery and Hardware Industries.

The 1907 report of the association handling the accidents for the machinery and hardware industries of Germany shows that it embraced 7735 plants at the end of that year. The wages paid increased from 260,000,000 marks in 1906 to 289,000,000 marks in 1907; the average earnings per workman, based on 300 days, increasing from 1404 marks in 1906 to 1448 marks in 1907. The average earnings were 1253 marks in 1902. The number employed rose from 211,327 in 1906 to 227,091 in 1907.

There were 2319 accidents in 1907, against 1951 in 1906 and 1854 in 1905. Of these, 27 were due to the employer, 1071 due to the workmen, and 1221 due to other causes. Of the total of 2319 accidents, 922 happened with machinery and machinery appliances. In 1907 there was paid, as damages and relief, 2,283,133 marks for 11,024 accidents occurring in former years, and 469,886 marks for the 2319 accidents in 1907. In 1906 the total sum was 2,494,966 marks.

The total cost of accident insurance in the machinery and hardware industries in 1907 amounted to 3,266,950 marks, or roughly \$800,000, which included damages, 2,757,146 marks; additions to reserve fund, 224,986 marks; cost of administration, 144,333 marks, and costs of examinations of accidents, of arbitration and of accident prevention, 128,997 marks. The working capital of the organization was 3,057,047 marks, and the reserve fund was 5,207,561 marks at the end of 1907.

Customs Decisions.

Malleable Iron Castings.

The Board of General Appraisers has upheld the contention of W. A. Fleetham, Detroit, Mich., regarding the classification under the tariff of malleable iron castings, which the customs authorities had assessed at 45 per cent. ad valorem under the provision in the tariff act for "manufactures of metal." The importer alleged that the articles should be admitted at 9-10 cent. per pound as "castings," not specially provided for. In his decision for the board, General Appraiser Howell says that the articles are castings of iron upon which no labor or manufacture has been bestowed subsequent to the casting process. Not having been advanced beyond the condition of castings, they are held dutiable as claimed. The general appraiser states that the authorities are clearly in error in returning the articles as manufactures of metal.

Iron and Steel Grit for Polishing.

Judge Lowell, in the United States Circuit Court at Boston, has refused the petition of the Harrison Supply Company, asking for a reversal of a decision of the Board of General Appraisers relative to the classification of so-called iron sand, iron shot, iron grit, steel shot, or diamond steel. The articles are used for sawing and polishing granite and stone and similar purposes. When the issue was before the board that tribunal upheld the collector of customs in his assessment of duty at the rate of 45 per cent. under the provision in the tariff act for manufactures of metal. The importer alleged that the merchandise should be returned for duty under paragraph 124 at 5-10 cent per pound. This paragraph provides for iron less finished than iron in bars and more advanced than pig iron, except castings. As an alternative claim, the importer specified the tariff provision for metallic mineral substances in a crude state and unwrought metals at 20 per cent.

Needles and Their Cases.

It has been decided by the Board of United States General Appraisers that in instances where needles and their cases are invoiced separately they are not to be assessed for duty as entireties. The importations the subject of the board's ruling were made by Watson, Porter, Giles & Co., New York. The hand needles were contained in small cylindrical metal cases, and were classified as manufactures of metal with a duty of 45 per cent. In upholding the contention of the importers for separate classification of the articles General Appraiser Howell records free entry to the needles, while the cases are found to be properly dutiable at the 45 per cent. rate.

Air Ships.

The progress now being made in the development of the airship will probably result in the incorporation in the next tariff act of a special provision covering this new engine of aerial navigation. The present tariff law contains no provision for airships, although balloons are specified and pay duty as the rate of 30 per cent ad valorem. When the Dingley bill was drawn, in 1897, airships were at such a low stage of evolution that the framers of the law ignored their existence. Customs officials have, therefore, fallen back to the section of the present revenue act which specifies that imported articles not enumerated in the law shall pay duty according to the component material of chief value. It thus happens that this "catch-all" provision has had the effect of bringing airships, for purposes of duty, under the metal schedule, with a duty of 45 per cent. The metal classification accrues owing to the fact that the motors and other metal parts of the ship exceed in value any other given component.

So far the importation of airships at the port of New York has probably not exceeded half a dozen, but the custom house authorities are alive to the possibilities of the not distant future, and Congress will be urged to recognize specifically the march of invention by setting aside a special paragraph in the next tariff for airships. As matters stand at the present time, it is said the duty levied on airships is made without due regard to the actual cost of such machines. The 45 per cent. duty is exacted precisely as though the ship were composed en-

tirely of metal, no regard being paid to the other materials entering into the construction of the machine.

General Appraisers Well Up with Their Work.

Recent criticisms of the Board of United States General Appraisers, to the effect that it is falling behind in its work, are met with a flat denial by Marion De Vries, president of the board. He declares that the alleged congestion of the suspended files is not indicative of remissness on the part of the board and says that were every appeal decided by the courts at once the board could and would dispose of all these protests within a period of 60 days. The statement further points out that by January next there will be fewer suspended cases than at any period since the organization of the tribunal. The president is emphatic in the statement that at the close of the fiscal year, as well as at present, the work of the board was up to the possibilities of that day.

The Metal Trades Department of the American Federation of Labor.

The Boston Branch of the National Metal Trades Association makes the following announcement in a recent bulletin:

The American Federation of Labor has finally organized its metal trade department, which will have an office in Washington, D. C. Nine unions have become members of this department and have paid the initiation fee of \$5, as follows: International Molders' Union, International Association of Machinists, International Union of Stove Mounters and Steel Range Workers, Metal Polishers', Buffers' and Platers' International Union, International Brotherhood of Blacksmiths and Helpers, International Brotherhood of Foundry Employees, International Association of Steam, Hot Water and Power Pipe Fitters and Helpers, International Union of Steam Engineers, Patternmakers' League of North America. Other metal trade unions may join this council by the payment of the requisition initiation fee.

James O'Connell, president of the International Association of Machinists, was elected president of the new organization. The vice-presidents are Jos. F. Valentine (Molders' Union), A. B. Grout (Metal Polishers), J. W. Kline (Brotherhood of Blacksmiths), Geo. F. Dunn (Boilermakers' Union). James L. Gernon of the Patternmakers' League was elected secretary-treasurer. His salary will be \$1800 per year.

The constitution and by-laws of the new organization state the objects to be "to advance the interests and welfare of the metal trade industry; to adjust trade disputes along practical lines as they arise, and to establish more harmonious relations between employer and employee." The real object is to strengthen the position of the unions and make successful sympathetic strikes. Vigorous efforts will be made to organize the membership of these unions into local metal trade branches in all large employing centers. Wherever there are three or more local unions of affiliated trades in any locality they are compelled by this new arrangement to organize themselves into a local Metal Trades Council. The council will be supported by the levy of a tax of one-quarter of 1 cent for each individual member belonging to the respective organizations.

The Colonial Steel Company, Pittsburgh, which intends to increase its capital stock in the sum or \$750,000 of preferred 7 per cent. cumulative stock, states that it is not contemplating extensive additions to its plant at this time, but desires the additional capital for use in new lines, more particularly the manufacture of composite steel and brass and steel and copper, which is now developing into a large business.

The plant of the Neafie & Levy Ship & Engine Building Company on the Delaware River at Philadelphia, Pa., was sold at auction July 28 for \$50,000, subject to a mortgage and ground rent of \$297,000. Frank D. Somers, attorney for the Camden Bank, was the successful bidder. This step by the receiver, Howard E. Connell, made a final adjustment of the company's affairs.

The Naval Strength of the Nations.

BY SIDNEY GRAVES KOON.

As has been the case continuously for nearly 200 years, Great Britain occupies the premier naval position at the present time, with 193 ships of upward of 9000 tons each, active and building, as compared with 117 for Germany, 110 for the United States and 96 for France. The list following tabulates the situation at the moment for the leading eight powers, with the results of such combinations as the Anglo-Saxon, the Franco-Russian, the Dreibund (Germany, Italy and Austria), and the sum of the two latter:

	Displacement.		Guns.		Average.		Ships over-	
	Ships.	Tons.	Tons.	Knots.	10,000	16,000	tons.	tons.
Great Britain...193	1,897,860	7,540	9,833	20.15	103	20		
United States...110	837,208	3,955	7,611	18.97	41	12		
France...96	788,573	3,235	8,048	19.09	37	6		
Germany...117	780,720	3,844	6,673	19.1	33	9		
Japan...48	422,709	1,829	8,806	19.97	18	4		
Russia...50	339,689	1,747	6,794	18.38	13	2		
Italy...43	321,872	1,681	7,485	20.16	13	1		
Austria...27	171,991	866	6,370	19.67	6			
All others...156	558,285	3,550	3,580	17.9	3	3		
Totals...840	6,118,907	28,247	7,284	19.44	267	57		
Anglo-Saxon...303	2,735,068	11,495	9,027	19.79	144	32		
Franco-Russian...146	1,128,262	4,982	7,727	18.87	50	8		
Dreibund...187	1,274,583	6,391	6,816	19.44	52	10		
Continental...333	2,402,845	11,373	7,216	19.18	102	18		

Such figures as these do not tell the whole story. For instance, the fastest navy is that of Chile, with an average speed of 20.74 knots. Brazil comes next, with 20.18 knots, followed closely by Italy and Great Britain, while Argentina, with 18.88 knots, is ahead of Russia; otherwise the order may be picked from the table. In average size of ships no nation in the table has an average as great as has Austria, the lowest listed. The only ships of over 10,000 tons belonging to any nation outside the eight tabulated are three battleships building for Brazil in England, and said in some quarters to be ultimately destined for Japan.

An examination of the table shows that the Anglo-Saxon combination is superior to the five combined continental nations in displacement, guns, average size and speed, and much superior in the number of large ships. In total number of ships only are we inferior. Of course, the large advantages accruing from a common language and common ideals would be of enormous benefit should it ever be necessary to measure strengths.

Taking up the eight leading nations in a little more detail, and omitting further all ships under 3000 tons and all unarmored ships under 18 knots, we get two tables, one covering battleships only, while the second covers cruisers, both armored and protected. In each case the divisions are somewhat arbitrary, but they are thoroughly uniform, and totally fair.

	Battleships.—First class.			Second class.			Third class.		
	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.
Great Britain...56	862,000	19.08	14	152,070	17.29	2	18,660	14.43	
United States...31	445,679	18.54	11	45,339	12.83				
France...22	313,956	18.66	8	84,362	15.98	10	66,789	15.33	
Germany...20	314,290	19.63	14	152,581	17.61	13	66,634	14.98	
Japan...15	231,752	19.8	3	36,308	18.04	3	18,126	14.91	
Russia...8	112,134	17.71	4	37,753	16.47	5	32,923	14.7	
Italy...10	135,528	21.04	5	62,317	17.74				
Austria...3	43,500	20	6	55,923	20.15	5	28,549	17.02	
	Cruisers.—Armored.			First class.			Second class.		
	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.
Great Britain...35	417,360	23.01	23	213,710	20.75	39	176,320	20.11	
United States...15	186,651	22.19	3	20,620	22.58	12	47,117	21.27	
France...18	190,796	22.07	4	29,655	22.14	16	80,230	19.33	
Germany...8	78,381	21.15				27	107,996	21.84	
Japan...9	81,412	21.53	1	6,500	23.7	8	33,931	21.49	
Russia...6	62,644	20.67	6	38,935	23.14	6	32,100	19.46	
Italy...7	61,250	21.61	1	6,000	25	3	17,303	19.44	
Austria...1	7,185	22.01				5	22,804	20.68	

These two tables should be supplemented by another giving the totals, the total battleships and the total armored fleets, as follows:

	Grand totals.			Total armored.			Total battleships.		
	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.	Ships.	Tons.	Speed.
Great Britain...169	1,840,120	20.06	107	1,450,090	19.95	72	1,032,730	18.73	
United States...72	745,406	19.39	57	677,669	19.16	42	491,018	18.01	
France...78	765,788	19.12	58	655,903	18.97	40	465,107	17.7	
Germany...82	719,882	19.27	55	611,886	18.81	47	533,505	18.47	
Japan...39	408,029	19.98	30	367,598	19.77	21	286,186	19.33	
Russia...35	316,489	18.68	23	245,454	17.87	17	182,810	16.91	
Italy...26	282,398	20.39	22	259,095	20.37	15	197,845	20	
Austria...20	157,961	19.71	15	135,157	19.55	14	127,972	19.4	

One further table will conclude our study of the question. This deals with the batteries of the various ships, arranged according to the size of gun. The first column shows the number of guns of 12-in. caliber and upward carried on the ships listed, with the broadside fire in parenthesis. The second column shows the guns of 8-in. and upward, but under 12-in.; the third shows those between 3.9-in. (10 cm.) and 8-in., while the last shows the smaller guns and torpedo tubes:

	12-in. guns.	8 to 12 in.	3.9 to 8 in.	Smaller.
Great Britain.....	312 (298)	172 (134)	1,915 (1,047)	4,701
United States.....	172 (172)	224 (162)	728 (374)	2,230
France	103 (100)	108 (62)	859 (472)	1,870
Germany .....	..	326 (299)	741 (371)	2,187
Japan	66 (66)	126 (89)	428 (218)	1,080
Russia	50 (46)	83 (53)	379 (204)	1,035
Italy	44 (44)	97 (69)	310 (161)	7-8
Aus.ria	17 (15)	63 (51)	210 (108)	448

It will be noted that, with regard to number and aggregate displacement of fighting ships, the United States, France and Germany are running a very close race, standing in that order in armored ships, but with little room for choice. When we examine the batteries carried, however, the immense superiority of the United States in heavy guns, and particularly in 12-in. guns, becomes at once apparent. Germany has no guns over 11 in. In those of 8 in. and upward the United States carries 396, to 326 for Germany (averaging smaller in size) and 211 for France. It will be remembered that in the war of 1812 a large part of the American success at sea was attributed, and rightly, to the American guns and the way they were handled. We have to-day a navy with heavier guns on the average than those carried by the ships of any other power, not even excepting England, and reports of target practice leave little doubt that our gunnery is without an equal on the face of the globe. So it will be seen that American traditions in this respect are being followed out in the present force in such measure that we can rightly say that "ship for ship, and gun for gun, our navy is without a peer."

The Pope Mfg. Company's Reorganization.

A rehabilitation of the properties composing the Pope Mfg. Company, which became bankrupt August 15, 1907, as a result of its inability to obtain necessary accommodations from the banks in various States, has been arranged by the Reorganization Committee consisting of Harry Bronner of Hallgarten & Co.; Frederick H. Ecker of the Metropolitan Life Insurance Company, and August Hecksher, through the formation of a new corporation with a capital of \$2,500,000 of preferred and \$4,000,000 of common stock. This new company will purchase all of the manufacturing plants and other property of the old concern and will operate the factories in Hartford, Conn., and in Westfield, Mass., selling other properties. It is believed that the receivers will have at the time of the sale of the properties of the old company an amount in cash sufficient, together with the funds which will be paid in, to settle all claims of creditors in full as well as all reasonable and equitable expenses of the receivership.

The new company will authorize an issue of \$800,000 of 6 per cent. short term notes to be dated August 1. These notes are to be secured by a mortgage to the Central Trust Company on all the new company's property. All the stock of the new company, except the directors' qualifying shares, will be issued to voting trustees, who will vote the stock until August 1, 1911.

Harrington, Robinson & Co., Boston, are now the sole New England agents for Toledo high speed steel, manufactured by Jno. Hy. Andrew & Co., Ltd., Sheffield, England, and carry in their warehouse, 272-276 Franklin street, Boston, a complete stock in all sizes.

PERSONAL.

On July 22 a large number of leading members of the British Iron Trade Association assembled in London to do honor to James Stephen Jeans, the occasion being his retirement, owing to ill health, from the position of secretary, to which he was appointed in 1877. The presentation took the form of a handsome and massive silver bowl with handles in the shape of panthers, a pair of candlesticks and a mirror, accompanied by an illuminated address. Among the speakers were Alexander Findlay, the president of the association; Lord Airedale, Lord Glantawe, and H. J. Skelton.

Edgar S. Cook, president of the Warwick Iron & Steel Company, Pottstown, Pa., has returned from a brief trip to Europe.

Joseph G. Butler, Jr., Youngstown, Ohio, has arrived in Berlin, Germany.

R. H. Wolff, of New York, the representative in this country of the Héroult electric furnace and process, has sailed for Europe for a stay of some weeks.

Ralph McCarty has severed all connections with the Stoeber Foundry & Mfg. Company, Myerstown, Pa., and will devote his time to other interests.

Paul W. Webster, formerly with the Variety Iron & Steel Works Company, Cleveland, Ohio, and for the past 18 months assistant manager of M. H. Treadwell & Co. of Pennsylvania, Lebanon, Pa., has been elected general manager.

W. E. Farrell, while retaining the vice-presidency of M. H. Treadwell & Co. of Pennsylvania, Lebanon, Pa., has resigned his position as general manager, and has been elected president of the Stoeber Foundry & Mfg. Company, Myerstown, Pa., of which company he is also general manager.

Herman S. Hastings, formerly connected with local organizations in New England of the National Metal Trades Association and the National Founders' Association, has recently been elected commissioner of the United Metal Trades Association of the Pacific Coast, with headquarters at the main office of the association, 319 Pioneer Building, Seattle, Washington.

W. L. Kaufman, for some years general manager of the Youngstown plant of the National Tube Company, Youngstown, Ohio, has resigned and is connected temporarily with the Ohio Iron & Steel Company, operating Mary Furnace at Lowellville, Ohio.

A. A. Fowler, resident partner in New York of Rogers, Brown & Co., expects to start next week for a shooting trip in the Yukon country.

Dr. R. W. Raymond, of New York, secretary of the American Institute of Mining Engineers, has returned from England, where he was associated with the efforts to secure an extension of the Gayley dry blast process patent.

Corrigan, McKinney & Co. expect soon to begin the erection of a large blast furnace plant in Cleveland, Ohio. They have just closed negotiations for the purchase of 40 acres of land on the upper river bed in that city as a site, on which it is the intention to build two large furnaces. Work on one will probably be started early this fall, and the erection of the second will be started when the first is near completion. It is expected that one of the stacks will be ready for operation in about a year. Plans have not yet been prepared, and the capacity of the furnaces has not been decided upon. As a part of the undertaking, extensive ore docks will be erected along the river front. Corrigan, McKinney & Co. ceased to operate a furnace in Cleveland a year ago when their lease on the River Furnace expired and that furnace reverted to its owner, the Upson Nut Company, which is operating it at the present time.

The Driggs-Seabury Ordnance Corporation, Sharon, Pa., manufacturer of ordnance, forgings, drop forgings and general machine work, has placed a contract with the Wm. B. Scalfé & Sons Company, Pittsburgh, for the structural steel for an addition to one of its buildings.

This addition is to be 80 x 100 ft., the approximate amount to be spent for building, machinery, &c., being \$40,000. The Driggs-Seabury Ordnance Corporation has been making pressed steel parts in a small way, but is now going after this business on a larger scale.

OBITUARY.

HARRIS TABOR.

Harris Tabor of the Tabor Mfg. Company, Philadelphia, died July 29. His death was the result of an automobile accident which occurred July 4, 1907, while on his way to visit a friend in New Jersey. He was laid up until the first of September, shortly after which he resumed his duties with the Tabor Company. His improvement was slow, and in March he contracted a heavy cold, forcing him to bed in May, and this, together with his weakened condition, brought about his death.

Mr. Tabor was born in Clarence, Erie County, N. Y., January 26, 1843. He received a common school education. He was of a studious disposition and possessed a retentive mind, which developed to a rare analytical, executive and inventive ability in things mechanical. At the age of 21 he enlisted as a private in the Union Army, serving for a term of two years. His mechanical training started as an apprentice in the shop of his brother, Leroy Tabor, Sr., at Tioga, Pa., where he remained two years up to the time of his enlistment. After his discharge from the army he went to work as a machinist for S. Payne at Troy, Pa. From there he went to B. W. Payne & Sons, Corning, N. Y., and when this firm moved to Elmira, N. Y., he was made superintendent. In the early eighties he moved to Hartford, Conn., to assume the position of superintendent of the Hartford Steam Engine Works. After one year's service at Hartford he went to Pittsburgh as superintendent of the Westinghouse Machine Company, where he remained about three years. Up to this time his work had been along the lines of steam engineering, and he had invented and placed on the market a steam engine indicator and a throttle governor. The former was sold to, and is now being manufactured by, the Ashcroft Mfg. Company. It was during his service with the Westinghouse Company that he made observations in the foundry and conceived the idea of a molding machine operable by power, recognizing the great commercial value of a machine of this type.

At this juncture, in 1885, he associated himself with Manning, Maxwell & Moore, with the understanding that they were to assist him in developing, perfecting and marketing the molding machine. He then resigned his position as superintendent of the Westinghouse Company and took up quarters in New York City, where he could give the development of the molding machine his full attention. During 1886 and 1887 he also brought out a throttle governor which was manufactured by the James Brady Company, Brooklyn, N. Y. For a period of three years, from 1885, he had been experimenting with and building molding machines at the B. W. Payne & Sons Company plant at Elmira, N. Y., and in 1888 he placed on the market the first successful power molding machine operated by steam, with a cylinder overhead.

In the fall of 1888 the manufacture of the machines was transferred to the Pond Tool Works, Plainfield, N. J., and continued there until the early nineties, when he reorganized the Tabor Mfg. Company and transferred their manufacture to the S. L. Moore Sons Company, Elizabeth, N. J. It was here that he brought out vibrator molding and built the first molding machine operated by compressed air. In 1900 he sold out the greater portion of his interest in the company and retired from the presidency, although he still continued in the capacity of consulting engineer to give the company the benefit of his large experience and knowledge of the needs of the foundry trade.

JOHN D. INGRAM, district manager of the American Car & Foundry Company, died at Louisville, Ky., July 25, aged 53 years. He was born in Jeffersonville, Ind., and had been promoted to his responsible position after long and faithful service in the car works at that place.

June Exports and Imports of Iron and Steel.

The June report of the Bureau of Statistics of the Department of Commerce and Labor shows that only a slight gain was made on the falling off in domestic exports of iron and steel which had been shown for the month of May. The total June value of such exports, not including ore, was \$11,677,944, against \$11,281,425 in May. Taking the commodities for which quantities are given, the total exports for June were 69,778 gross tons, against 64,020 tons in May, 93,522 tons in April, 96,437 tons in March, 81,755 tons in February and 74,352 tons in January. The following table gives the details of the exports of such commodities for June and for the complete fiscal year ending with June, as compared with the corresponding periods of the previous year:

Exports of Iron and Steel.			
June.		Twelve months.	
1908.	1907.	1908.	1907.
Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	4,906	5,977	52,518
Scrap	1,991	1,945	20,518
Bar iron.....	622	1,505	13,065
Wire rods.....	462	677	6,534
Steel bars.....	3,022	7,768	63,128
Billets, blooms, &c....	5,583	3,750	92,893
Hoop, band, &c.....	274	419	8,560
Steel rails.....	15,759	18,358	278,867
Iron sheets and plates.	3,124	2,462	42,024
Steel sheets and plates.	3,881	7,517	60,507
Tin and terne plates.	113	661	15,010
Structural iron and steel	8,417	11,495	134,299
Wire	10,415	11,727	156,960
Cut nails.....	528	664	6,481
Wire nails.....	1,234	3,601	35,541
All other nails, including tacks.....	491	1,582	5,774
Pipes and fittings....	8,956	12,888	168,591
Totals.....	69,778	92,996	1,161,270
			1,229,244

The imports of iron and steel for June show a slight increase over the figures for May. The total June value of such imports, not including ore, was \$1,759,651, against \$1,347,332 in May. Taking the commodities for which quantities are given, the June total was 21,109 gross tons, against 13,584 tons in May, 12,342 tons in April, 15,885 tons in March, 19,054 tons in February and 28,008 tons in January. The following table shows the details of the imports of such commodities for June and for the full fiscal year ending with June, as compared with the corresponding periods of the previous year:

Imports of Iron and Steel.			
June.		Twelve months.	
1908.	1907.	1908.	1907.
Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	9,341	44,885	204,092
Scrap	537	3,714	17,614
Bar iron.....	859	4,322	32,504
Rails	206	663	2,839
Hoop, band, &c.....	5	2	473
Billets, bars and steel in forms n.e.s.....	1,099	903	16,499
Sheets and plates....	241	240	2,623
Tin and terne plates..	7,650	3,880	62,652
Wire rods.....	1,110	1,603	13,571
Structural iron and steel	61	230	1,530
Totals.....	21,109	60,442	354,397
			746,675

The imports of iron ore in June were 43,429 gross tons, against 51,780 tons in May. The total iron ore imports for the fiscal year ending with June, 1908, were 958,378 tons, against 1,096,717 tons in the fiscal year 1907.

The total value of all kinds of exports of iron and steel, not including ore, for the fiscal year ending with June, 1908, was \$183,982,182, against \$181,530,871 in the fiscal year 1907. The total value of similar imports for the fiscal year 1908 was \$27,607,909, against \$40,587,865 in the fiscal year 1907.

Some press reports relative to the operations of Spang, Chalfont & Co., Inc., Etna Iron & Tube Works, Pittsburgh, are untrue and misleading. To begin with, their mills have not been shut down completely at any one time this year, nor have they been operated in full at any time. The butt weld department is running to half capacity night and day, while a fair percentage of the entire capacity now in operation is 70 per cent. The June business of this concern was the largest it has en-

joyed since last October, and July business was practically the same as June, the difference being scarcely noticeable, both as to tonnage and value. Prospects for the future at about the same rate are very good.

The Sloss-Sheffield Ore Properties.

President J. C. Maben of the Sloss-Sheffield Steel & Iron Company, in his annual report, recently issued, places the company's iron ore land holdings at 51,125 acres. He states that in the hard ore field, where the vein runs irregularly, about 2060 acres have been developed, while in the brown ore fields about 1924 tons have been worked. It is estimated that the ore in the hard ore fields approximates 72,600,000 tons, while that in the brown ore fields totals 26,000,000 tons. In the undeveloped vein of hard ore, it is believed there is a total of 419,000,000 tons, or 17,000 tons to the acre. In the Russellville tract, Mr. Maben states, the company owns 18,600 acres of brown ore land on which a mining engineer estimated a few years ago that there was an aggregate of 110,400,000 tons of 2240 lb. each. By way of summary, he says:

Taking the report as a basis and making due allowances for any overestimate, and after deducting 25,000,000 tons from our total estimate, and not including any interest in the Champion mine, we feel that it is conservative to estimate the brown ore owned by your company at 133,500,000 tons.

This added to the 492,400,000 tons, the estimated amount of hard ore developed and undeveloped, would make the aggregate ore holdings of the Sloss-Sheffield Company 625,900,000 tons.

Mr. Maben estimates that the company's coal lands extend for more than 65,000 acres, while the coal contained therein approximates 1,438,090,348 tons.

The Youngstown Sheet & Tube Company expects to have its first blast furnace in operation by September 15 and the second one a month later. One new pipe mill is now in operation, and the company expects to start a new lapweld mill about October 1. The new galvanizing plant and the last pipe mill which was authorized will not be finished before February 1 of next year. The company is not adding any more finishing mills, but is putting in a new 2500-hp. engine at its rod mill and will double its wire and wire nail capacity. It is also putting in two galvanizing plants for galvanizing wire.

The annual meeting of stockholders of the Youngstown Sheet & Tube Company was held in Youngstown, Ohio, last week. The entire present board of directors was re-elected, consisting of J. A. Campbell, H. G. Dalton, C. D. Hine, Robert Bentley, George D. Wick, John L. Severance, William Wilkoff, H. H. Stambaugh, E. L. Ford, J. G. Butler, Jr., and Richard Garlick. Reports of the various officers for the year were read, showing the great strides made by the company in the past year and the progress being made in the improvements and additions now under way at the plant.

The Chester B. Albree Iron Works Company, Allegheny, Pa., has the contract for the metal railing on the great Blackwell's Island Bridge, New York City. One approach of this bridge is completed, but the bridge itself and the other approach, which together are some 6300 ft. long, are yet in process of construction. The company is working on what is known as its type C railing, which is of the ordinary lattice design, but about 6 ft. high and quite heavy. There is some 12,000 ft. of this type of railing and it will keep a night turn busy for some time to come.

The Youngstown Car Mfg. Company, Youngstown, Ohio, has received an order for 24 slag cars for the Ohio Works of the Carnegie Steel Company, Youngstown. These cars are to be of double truck, platform construction, and all steel. An order for 20 cars of 80,000 lb. capacity each, for the Honolulu Iron Works, has just been completed. These cars will be shipped by rail to San Francisco.

Trade Publications.

Centrifugal Fans.—Jeffrey Mfg. Company, Columbus, Ohio. Catalogue 26, 6¼ x 9¼ in., 24 pages. Fans especially adapted for mine ventilation are treated of, and it is explained that the company has devised a type of mine fan of high efficiency at low speeds and against heavy resistance. The special features are that the wheel vanes discharge the air in a radial direction, and that by the use of conical scoops it is claimed the air is prevented from gushing from the inlet. Several sizes of fans and fan casings are shown and line drawings illustrate typical settings. A page of engineering formulæ is included.

Machine Tools.—Gisholt Machine Company, Madison, Wis. Booklet. A compact presentation of the entire line of machine tools made the company, including turret lathes, vertical boring mills, grinders, horizontal milling machines, gear testing machines, &c. Standard types of machines are illustrated, together with standard tools furnished with them. Methods of finishing machine parts with Gisholt tools are illustrated by diagrams and samples of lathe work are shown. A number of the machines illustrated are shown with motor drives.

Cableways.—Lidgerwood Mfg. Company, New York. Catalogue, 9 x 12 in., 168 pages. Important engineering operations on which Lidgerwood cableways are in use are described and illustrated, and the volume forms a complete textbook on cableway practice. Cableways in use for coaling at sea, for excavating purposes, for use at dry docks, coal conveying, &c., are shown. All the illustrations are accompanied by descriptive text which clearly explains the important details of the equipment.

Foundry Equipment.—J. W. Paxson Company, Philadelphia, Pa. Bulletin No. 18. Briefly describes sand blast machines, firebrick lining, molding sand, flux and other foundry specialties handled by the company, and some space is given to the Paxson freight lines explaining the company's waterway freight lines and showing that the company does towing, lightering, stevedoring, &c., for the trade, and describing its fleet of boats.

Oil Filters and Systems and Exhaust Heads.—Standard Gauge Mfg. Company, Syracuse, N. Y. Bulletin No. 1. Contains an exposition of the Eclipse oil filters and Eclipse continuous oiling system and their advantages. The bulletin illustrates special forms for particular conditions, explains the component parts of the system. Oil filter fittings, oil storage tanks and other oil service equipment is shown.

Belt Lacing.—The Bristol Company, Waterbury, Conn. Booklet. Shows patent steel belt lacing and gives directions for applying and price-lists.

Engines and Boilers.—Erie Engine Works, Erie, Pa. Catalogue, 6 x 9 in., 52 pages. Automatic cut-off engines are shown, including center crank, side crank, medium speed engines and a double automatic cut-off engine. Stationary engines and portable engines, stationary tubular boilers, locomotive boilers, portable boilers and vertical boilers are also illustrated, together with the Erie special shaking and dumping grate and the Hardwick feed water heater.

Electrical Equipment.—General Electric Company, Schenectady, N. Y. Three bulletins and circular. No. 4575 shows type F, form K-7, oil break switches, designed to meet the requirements of induction motor installations; No. 4596 illustrates numerous types of inclosed globes for arc lamps; No. 4597, superseding No. 4315, illustrates the Thompson astatic instruments for continuous current switchboards, and circular No. 3664 shows a new lamp locking socket. This socket is so made that the lamp cannot be removed without the use of a key.

Motors and Dynamos.—The Holtzer-Cabot Electric Company, Brookline Station, Boston, Mass. Three bulletins. No. 307B, displacing 307A, shows alternating and direct current buffing and grinding motors for large work which are adapted to driving wheels from 4 to 10 in. in diameter; No. 314A, displacing 314, is devoted to motors and dynamos for direct current; No. 316 shows small size direct current motors, type LM.

Hoisting Engines and Contractors' Equipment.—John F. Byers Machine Company, Ravenna, Ohio. Catalogue No. 11, 9 x 11 in., 75 pages. Several types of hoisting engines adaptable for contractors' work are illustrated in this book, and the company's standard hoisting engines are graphically described. Double cylinder bridge erecting engines, industrial locomotives, gantry cranes, material elevators, traveling derricks and other contractors' equipment is shown, with prices and directions for ordering.

Coal Cleaners.—Pennsylvania Crusher Company, Philadelphia, Pa. Bulletin No. 510. This is a card, arranged for hanging up, containing drawings and descriptive matter explaining the Pennsylvania Bradford coal cleaner, which acts as a combined crusher and mechanical separator.

Crucible Steel Castings.—New Process Steel Company, Marshall Mich. Booklet entitled "The Effect of Vanadium on Steel." Explains the advantage of this ingredient in steel and

refers to the company's New Process steel, in which ferro-vanadium is used.

Induction Motors.—Crocker-Wheeler Company, Ampere, N. J. Bulletin No. 105, superseding No. 88. Treats of Poly-phase induction motors, which are made in up to 250-hp. sizes. Several installations of such motors are shown.

Belting.—J. A. & W. Bird Company, Boston, Mass. Bulletins 3 and 4 in a series of six semitechnical talks on belting. No. 3 treats of pulley arrangements, belt dressing, joints, &c., and gives other hints. No. 4 gives rules for arranging pulleys, method of setting guide pulleys, and argues that the company's line of canvas belting needs no belt dressing because of the fact that a heavy gum enters into the manufacture. The bulletins also refer to a computer for determining belt transmission calculations, which can be had for 10 cents in stamps.

Steel Pipe Couplings.—S. R. Dresser Mfg. Company, Bradford, Pa. Supplementary catalogue. Devoted principally to Dresser pipe couplings and sleeves. Views of the construction of East Ohio Gas Company's trunk line made last summer, where Dresser couplings and sleeves are used, are given, together with views showing the evolution of the couplings and illustrations of standard sizes.

Welding.—Pittsburgh Welding Company, Pittsburgh, Pa. Booklet. Advocates the company's welding outfits, which are furnished complete for welding cast iron, steel, tool steel, brass and copper.

Reinforced Concrete.—Turner Construction Company, 11 Broadway, New York. Bulletin No. 4. Gives numerous views of a large warehouse at Jersey City erected by the company, and arguments are given favoring the use of reinforced concrete for factories, warehouses, power plants, &c.

Electric Motors.—Emerson Electric Mfg. Company, St. Louis, Mo. Five bulletins. No. 3128, replacing No. 3112, shows a small single phase induction motor (1-20 hp.) especially adapted for running electric fans, &c.; No. 3129, replacing bulletin 3114, shows a similar 1-6-hp. motor and explains its manufacture by diagrams; No. 3130, replacing 3118, describes a condensed type single phase induction motor made in ¾ and 1-6 hp. sizes; No. 3131 shows a 1-15-hp. motor, light load start type, adaptable for intermittent service; No. 3132 shows the same in a full load start type, and No. 3906 concerns motors suitable for family sewing machines.

Woodworking Machinery.—S. A. Woods Machine Company, Boston, Mass. Circular on "Increasing the Business and Specializing the Product," reproduced from the May issue of *Selling Magazine*. This explains the company's policy of concentrating its efforts on the manufacture of three special machines where formerly it manufactured a wide variety.

Machine Tools and Special Machinery.—Taylor & Penn Company, Hartford, Conn. Catalogue. Various styles of single and multiple drill presses are illustrated, and a 7-in. bench lathe, spring foot press, disk grinder and an automatic screw slotting machine are illustrated and described with comprehensive text matter. It is also explained that the company makes special machinery to order. The automatic screw slotter was described in *The Iron Age* April 30, 1908.

Coal Chute Windows.—H. M. Richardson Steel & Iron Company, 220 West Second street, Cincinnati, Ohio. Folder. Illustrates the Ideal coal or wood window which serves as a fuel chute. The body is made of heavy steel plate and it is lighted by transparent celluloid. A steel shield which works automatically is included in the window and can be easily removed.

Flexible Brass Joints.—Barco Brass & Joint Company, 56 North Jefferson street, Chicago, Ill. Catalogue, 6 x 9 in., 16 pages. Shows the Barco flexible joint, which is adaptable for use between sections of pipe wherever flexible conveyors are required for steam, compressed air, gas or liquids. The joint is made in three parts and has two nonmetallic gaskets which prevent the contact of metal to metal at any point. This, it is claimed, makes it impossible for the ball to grind itself in spots and the joint to become leaky. A liquid joint, particularly for conveying oil or liquids, is also shown, and several applications of both joints are illustrated.

Grinders.—Luther Brothers Company, Milwaukee, Wis. Catalogue No. 16, 6 x 9 in., 47 pages. Shows principally the Luther Diamond grinders, which are made particularly for grinding farm tools and cutlery. Grinders operated by pedal attachment and gears similar to those of a bicycle are shown, together with hand grinders, grinders operated by electric motors, &c. Some space is given to other equipment, such as small power saws, small gasoline engines, countershafts, floor scrapers and hardware specialties. Several circulars illustrating these specialties accompany the book.

Grinding Machinery.—Norton Company, Worcester, Mass. Booklet entitled "Helps—Don'ts, for All Who Grind." Contains directions for selecting grinders for various purposes, with instructions for mounting and operating and general directions covering maintenance.

Punches and Shears.—Cleveland Punch & Shear Works Company, Cleveland, Ohio. Catalogue A, supplement to catalogue No. 6, 9 x 12 in., 65 pages. Several types of shears man-

ufactured by the company are shown, together with bending rolls, planers, punches, &c. Space is given to the company's line of standardized tools for punching machinery, and numerous stock punches and dies are illustrated by line drawings. A number of sheets for ordering punching tools are also contained in the catalogue.

Tool Grinders.—Gisholt Machine Company, Madison, Wis. Loose-leaf circular. Shows the Gisholt tool grinder, designed especially for the grinding of lathe and planer tools. A set of 57 tools, embracing the ordinary shapes used in the machine shops, can be furnished with the machines, together with the charts showing the correct angles for grinding tools.

Tool and Cutter Grinders.—Greenfield Machine Company, Greenfield, Mass. Catalogue No. 3, 6 x 9 in., 55 pages. Illustrates the Greenfield universal grinder with its various attachments as a frontpiece, and following it the various operations it can perform with the attachments and the work that can be ground. Usually 13 regular attachments are furnished, and a number of special attachments can also be had. The standard machine is made with 6 $\frac{3}{4}$ in. swing and 21 in. between centers, and is capable of grinding cutters up to 11 in. in diameter. The book should be useful to operators, as the methods of cutting and grinding various tools are clearly illustrated.

Water Heaters.—Kellogg-Mackay-Cameron Company, Chicago, Ill. Booklet. Illustrates and describes the Spence water heaters. Space is also given to the Solell steam boiler and Kewanee radiators, for steam and hot water heating.

Milling Cutters.—National Tool Company, Cleveland, Ohio. Catalogue and price-list; 68 pages. Lists plain and side milling cutters, metal slitting saws, angular cutters, end mills, inserted tooth milling cutters, and various kinds of formed cutters, made in high speed and carbon steels. Also gives useful formulas and tables for determining dimensions of gears, &c.

Tumbling Barrels.—Henderson Brothers, Waterbury, Conn. Catalogue No. 9, 6 x 9 $\frac{1}{4}$ in., 24 pages. Shows a number of tumbling barrels in operation and also illustrates and gives prices on both wooden and cast iron tumbling barrels for grinding or polishing, tumbling barrels particularly adapted for brass castings, octagonal water tumbling barrels, cylindrical water tumbling barrels and three-compartment water tumbling barrels with cylinders of steel and lined with wood. Barrels of any size or form are made to order.

Electrical Equipment.—Cutler-Hammer Mfg. Company, Milwaukee, Wis. Booklet, entitled "Stage Lighting." Devoted to the company's line of Simplicity dimmers for use in theatres, lodge rooms, &c., for diminishing lights.

Saw Machinery.—Covel Mfg. Company, 1217 Fisher Building, Chicago, Ill. Catalogue, 6 x 9 in., 87 pages. Treats of the company's complete line of saw machinery, including saw filers, scarfing machines, shears stretchers, &c., especially adapted for band saw work and other equipment for making, sharpening and repairing saws of all descriptions and sizes. Some of the larger machines, such as band saw sharpeners, gang saw sharpeners, movable roll saw stretchers, scarfing machines, &c., are illustrated and the volume is comprehensively indexed.

Threading and Tapping Machinery.—Foote-Burke Company, Cleveland, Ohio. Catalogue, 6 x 9 in., 54 pages. Shows several Reliance bolt cutters which are made in sizes up to 6 in. for either belt or motor drive. The Reliance die head is illustrated unassembled and complete, and price lists and illustrations of taps, chucks, nut taps, &c., are given. The book includes directions for making and recutting dies and useful tables of information.

Gas and Gasoline Engines.—Olds Gas Power Company, Lansing, Mich. Catalogue, 7 x 10 in., 48 pages, and bulletins. In the catalogue a number of the company's engines are illustrated: one view, to indicate the range of sizes built, shows a 3-hp. engine mounted on a 300-hp. engine. Engines particularly adapted for operating centrifugal pumps, wood saws and portable equipment for driving concrete mixers and farm machinery are illustrated, together with sectional views of standard machines. Bulletin No. 1 shows Type A engines adapted for small power purposes; No. 2 describes the Type K engine, one suitable for operating on producer gas; No. 4 describes a 600-hp. suction gas producer plant, and No. 5 covers the Type G gas or gasoline engine.

Alternating Current Motors.—Century Electric Company, Nineteenth and Olive streets, St. Louis, Mo. Bulletin No. 10. Illustrates and describes single-phase motors, to the manufacture of which this company is exclusively devoted. Sectional views of standard machines are shown and motors are illustrated operating centrifugal pumps, presses, dough mixers, floor surfacing machines and similar equipment where small motors are adaptable.

Logging Machinery.—Clyde Iron Works, Duluth, Minn. Catalogue, 9 x 12 in., 95 pages. Devoted chiefly to the McGiffert loader for use in logging operations. Detailed views of the machine are given, showing the general construction, but the volume is largely taken up with excellent views taken in logging camps throughout the country, showing the loader at work. Some space is given to the Decker log loader, a type of

self-propelling loader also made by the company. These machines are furnished with engines of any type desired.

Recording Thermometers.—Bristol Company, Waterbury, Conn. Bulletin No. 92. Lists standard sizes of recording thermometers and shows specimen sections of charts.

Scrap Classification of the Republic Iron & Steel Company.

A revised classification of scrap iron, under date of July 15, 1908, has been issued by the Republic Iron & Steel Company, Pittsburgh, Pa., as follows:

Iron Axles.—Iron railroad car axles, M. C. B. sizes, free from locomotive axles or defective or imperfect forgings.

Steel Axles.—Steel railroad car axles, M. C. B. sizes, free from locomotive axles or defective or imperfect forgings.

Iron Rails.—Standard section T-rails, original weight 50 lb. per yard or heavier, minimum length 5 ft., free from frogs, guards, switches, turntable and curved rails.

Steel Rails.—Standard section T-rails, suitable for re-rolling, original weight 50 lb. per yard or heavier, minimum length 5 ft., free from split heads, frogs, guards, switches, curved and turntable rails.

A—No. 1 Railroad Wrought.—Heavy wrought iron from railroad shops and cars, 6 in. and longer, including iron links and pins.

B—No. 2 Wrought.—Heavy wrought iron and soft steel scrap from railroad shops and cars, 2 in. long, 2 in. wide or wider, and longer, including track bolts and nuts, iron angle bars and plain splices, free from patent joints, steel angles and splices, steel channel bars and track spikes.

BX—Track Scrap.—Railroad bolts, nuts, spikes; may include iron angle bars and plain splices.

C—Shafting.—Iron and soft steel, 1 $\frac{1}{2}$ to 4 in. round and square; 4 ft. and longer, in straight bars.

D—No. 1 Wrought.—Heavy wrought iron and soft steel lagging scrap; bars $\frac{5}{8}$ to 4 in., round or square; flats $\frac{1}{4}$ in. thick and heavier, 4 in. long or longer, including wagon axles, horseshoes and wagon tires, exclusive of other shapes or bent pieces.

E—No. 1 Country Wrought.—Heavy wrought iron and soft steel scrap (the latter not over 0.12 carbon), including buggy tires, horseshoes; all lagging scrap.

F—No. 1 Mill.—Iron and soft steel bars, not less than $\frac{3}{8}$ in. round or square, and flats not thinner than No. 12 wire gauge, including heavy railroad sheet; tank in separate sheets and rings, boiler sheet and rings, clean pipes and flues, heavy punchings and clippings and strictly soft steel agricultural implement shapes. All steel must be under 0.12 carbon.

G—No. 2 Mill.—Iron and soft steel hoops and sheets, railroad sheet, cotton tie clippings and ties, skeleton sheet scrap and iron too light for No. 1 mill; scrap shall be free from galvanized, tinned or badly rusted material.

H—No. 1 Busheling.—Iron and soft steel pipes and flues (clean); tank and bands No. 12 and heavier, boiler plate punchings and clippings, and soft steel and iron drop forgings and trimmings; nothing to be over 8 in. long or wide, free from galvanized or tinned stock. All steel must be under 0.12 carbon.

I—No. 2 Busheling.—Cut hoops, sheet, cotton ties and similar light material; nothing to be over 8 in. long or wide; free from dirt, galvanized or tinned material, or other similar inferior scrap.

JK—Axle Turnings.—Wrought iron and soft steel railroad car axle turnings and chips. Free from tire turnings.

L—Turnings.—Machine wrought and soft steel, clean and free from borings and drillings, other metals, dirt and lumps.

M—Drillings.—Wrought or soft steel, clean and free from other metals, dirt and lumps.

NO—Mixed Borings and Turnings, and Cast Borings.—Clean and free from other metals, dirt and lumps.

P—No. 1 Boilers, Cut.—Boiler sheets and rings not under 30 in. diameter, all rivets cut. Metal not over $\frac{3}{4}$ in. thick.

Q—No. 2 Boilers, Cut.—Boiler sheets and rings, under 30 in. in diameter, and riveted flues, not under 16 in. in diameter, all rivets cut. Metal not over $\frac{3}{4}$ in. thick.

R—Boiler Shop Scrap and Shipbuilding Shop Scrap.—Wrought and soft steel bar, shape and plate ends, punchings and shearings, free from curly clippings and hard steel.

S—No. 1 Cast.—Machinery and railroad cast, no pieces to weigh over 75 lb.

T—Stove Plate.—Stove plate and railroad locomotive grate bars, free from burnt iron.

U—Bundled Sheet Scrap.—New sheet clippings and shearings, securely bundled; bundles not over 15 in. in height, width or length (may be round or square), and weighing not over 40 lb. each of uniform solidity, not pressed by machinery.

V—Pipes and Flues.—Wrought and soft steel. Must be free from dirt or lime and from riveted seams.

Pig Iron Production.

A Marked Increase in July.

On August 1 the Rate Was 1,000,000 Tons a Year More Than on July 1.

Pig iron production in July shows a substantial gain over that for June—a total of 1,217,897 gross tons of coke and anthracite iron in the 31 days of last month, as compared with 1,092,131 tons in June. The number of furnaces active at the beginning of the month was 161, a net gain of 10 over the number one month previous. The weekly coke and anthracite capacity active August 1 was 284,590 tons; on July 1 it was 264,452 tons, a gain of over 20,000 tons, or at a yearly rate of more than 1,000,000 tons. The daily rate of production was 39,287 tons in July, as against 36,444 tons in June, steel works and merchant furnaces showing nearly the same ratio of gain in the month. The daily output of the steel works and merchant furnaces, respectively, in the first seven months of the year was as follows:

Daily Rate of Production.—Gross Tons.			
	Steel works.	Merchant.	Total.
January	21,432	12,286	33,718
February	25,717	11,446	37,163
March	27,145	12,474	39,619
April	24,185	14,104	38,289
May	24,505	13,098	37,603
June	23,923	12,521	36,444
July	25,762	13,525	39,287

It will be seen that after a steady reduction in the daily rate of pig iron production for three months, July shows a distinct upturn, bringing the total almost up to that of March, the high month of the year.

Capacity in Blast August 1 and July 1.

In the following table is given the weekly capacity of coke and anthracite furnaces in blast August 1 and July 1, based largely on their performance in the preceding month in each case:

Coke and Anthracite Furnaces in Blast.					
Location of furnaces.	Total number of stacks.	August 1.		July 1.	
		Number in blast.	Capacity per week.	Number in blast.	Capacity per week.
New York:					
Buffalo	14	6	13,076	6	12,022
Other New York...	7	2	1,942	2	1,712
New Jersey.....	8	2	3,358	2	3,725
Spiegel	2	0	0	0	0
Pennsylvania:					
Lehigh Valley....	25	6	6,328	6	6,150
Spiegel	3	1	133	1	130
Schuylkill Valley...	15	4	5,670	4	5,557
Low. Susquehanna...	7	2	3,367	2	3,564
Spiegel	1	0	0	0	0
Lebanon Valley....	10	3	2,242	4	3,683
Pittsburgh Dist....	45	28	72,860	22	60,949
Spiegel	3	2	2,150	2	2,574
Shenango Valley...	20	9	19,588	7	14,874
West. Penn.....	27	10	14,371	10	14,075
Maryland	4	2	3,811	2	4,142
Wheeling Dist....	14	3	4,676	2	3,859
Ohio:					
Mahoning Valley...	18	9	22,162	10	23,522
Central and North. and Michigan....	22	11	25,887	7	18,172
Hocking Valley and Hanging Rock....	12	6	4,154	6	4,741
Illinois and Indiana...	24	14	32,431	15	36,538
Spiegel	2	1	709	1	1,012
Minnesota	1	0	0	0	0
Wisconsin	6	2	2,490	2	2,275
Missouri	1	1	882	1	705
Colorado	6	2	3,802	2	3,892
The South:					
Virginia	23	9	6,347	8	6,202
Kentucky	7	0	0	1	1,218
Alabama	46	19	27,524	19	25,172
Tennessee	18	6	4,196	6	3,537
Georgia and Texas...	3	1	434	1	450
Totals.....	394	161	284,590	151	264,452

Among furnaces blown out in July were Robeson in the Lebanon Valley, McKeefrey and Tod in the Mahoning Valley, two South Works furnaces of the Illinois Steel Company at South Chicago, Norton in Kentucky, Belfont in the Hanging Rock District, and No. 5 Shenango in the Shenango Valley.

The list of furnaces blown in in July includes two Carrie, one Duquesne, one Edgar Thomson, one Clairton and one Monongahela in the Pittsburgh District; Ella, one New Castle and No. 1 Shenango in the Shenango Valley; Iron Gate in Virginia; Martin's Ferry in the Wheeling District; one Columbus, one Lorain, one Toledo, Newburgh and Bessie in Ohio, Federal in Illinois, and Mary in the Mahoning Valley.

July Product by Districts.

The table below gives the production of coke and anthracite furnaces in July and the four months preceding:

Monthly Pig Iron Production.—Gross Tons.					
	March. (31 days)	April. (30 days)	May. (31 days)	June. (30 days)	July. (31 days)
New York.....	49,231	62,263	64,746	61,249	66,498
New Jersey....	23,243	22,701	20,889	15,963	14,830
Lehigh Valley..	39,105	28,919	28,712	26,357	28,028
Schuylkill Val.	29,104	28,654	25,566	23,814	25,115
Lower Susquehanna and Lebanon Val.	23,907	28,315	29,943	31,058	26,204
Pittsburgh Dis.	325,953	276,883	284,571	259,771	303,645
Shenango Val.	76,377	71,970	53,720	58,244	82,978
West. Penn....	62,782	54,570	54,185	59,521	63,433
Md., Va., and Kentucky...	41,452	48,955	49,273	46,802	46,035
Wheeling Dis.	18,988	17,930	18,121	16,539	19,405
Mahoning Val.	105,310	94,780	99,788	89,238	95,053
Central and North Ohio.	94,952	88,047	88,995	70,283	93,084
Hocking Valley and Hanging Rock	20,108	18,772	21,259	20,342	20,187
Mich., Minn., Mo., Wis., Colo....	39,327	36,808	36,831	34,363	40,029
Chicago Dis....	147,014	157,633	165,291	153,162	152,981
Alabama	114,295	94,754	104,697	110,196	121,904
Tennessee					
Georgia and Texas	17,056	17,648	19,101	15,229	18,488
Totals	1,228,204	1,149,602	1,165,688	1,092,131	1,217,897

Production of Steel Companies.

Returns from all the plants of the United States Steel Corporation, the Cambria, Pennsylvania, Maryland, Lackawanna, Wheeling, Republic, Youngstown Sheet & Tube Company, Jones & Laughlin, La Belle, Bethlehem, Calumet, Inland, Colorado and Tennessee (Ensley) companies show the following totals of product month by month. We give separately a statement of the output of spiegel-eisen and ferromanganese, which is included for each month in the total production:

Production of Steel Companies.—Gross Tons.					
	Pig.—Total production.			Spiegeleisen and ferromanganese.	
	1906.	1907.	1908.	1907.	1908.
January	1,358,015	1,406,397	664,415	21,477	20,254
February	1,226,760	1,317,923	745,802	19,444	9,402
March	1,400,395	1,424,827	841,502	31,091	13,750
April	1,333,591	1,446,788	725,548	26,527	12,363
May	1,372,423	1,470,080	759,674	28,822	17,823
June	1,293,437	1,457,230	717,689	30,942	15,958
July	1,323,391	1,452,557	798,639	25,343	10,250
August	1,237,455	1,445,685	.....	23,696	.....
September	1,264,380	1,417,153	.....	30,270	.....
October	1,452,200	1,514,521	.....	35,105	.....
November	1,411,350	1,084,114	.....	21,861	.....
December	1,445,528	659,459	.....	19,480	.....

A Record of Active Capacity.

The active weekly capacity in coke and anthracite iron has shown the following fluctuations since January 1, 1903:

Capacity per week.		Capacity per week.	
August 1.....	284,590	October 1.....	445,468
July 1.....	264,452	September 1.....	412,563
June 1.....	259,284	August 1.....	410,088
May 1.....	268,674	July 1.....	408,617
April 1.....	264,890	June 1.....	443,092
March 1.....	267,437	May 1.....	452,031
February 1.....	241,925	April 1.....	439,564
January 1, 1908.....	232,652	March 1.....	403,157
December 1, 1907.....	347,372	February 1.....	405,792
November 1.....	491,436	January 1, 1905.....	377,879
October 1.....	511,397	December 1, 1904.....	357,846
September 1.....	507,768	November 1.....	334,249
August 1.....	513,471	October 1.....	319,249
July 1.....	528,170	September 1.....	291,573
June 1.....	523,220	August 1.....	246,092
May 1.....	524,538	July 1.....	272,301
April 1.....	496,456	June 1.....	336,107
March 1.....	511,035	May 1.....	368,244
February 1.....	492,359	April 1.....	337,257
January 1, 1907.....	507,397	March 1.....	308,751
December 1, 1906.....	513,860	February 1.....	273,692
November 1.....	500,580	January 1, 1904.....	185,636
October 1.....	469,665	December 1, 1903.....	244,156
September 1.....	441,426	November 1.....	273,715
August 1.....	449,908	October 1.....	353,142
July 1.....	460,570	September 1.....	360,197
June 1.....	472,622	August 1.....	353,681
May 1.....	484,031	July 1.....	384,825
April 1.....	484,240	June 1.....	388,178
March 1.....	479,737	May 1.....	373,496
February 1.....	482,156	April 1.....	386,215
January 1, 1906.....	463,673	March 1.....	347,424
December 1, 1905.....	475,814	February 1.....	335,239
November 1.....	460,449	January 1, 1903.....	346,073

At a meeting of the new Board of Directors of the Halcomb Steel Company, Syracuse, N. Y., held July 31, the following officers were elected for the ensuing year: President, C. H. Halcomb; vice-president, F. B. Scott; treasurer, F. R. Hazard; secretary, F. E. Wade; assistant treasurer, H. S. Fulmer; assistant secretary, W. A. MacKenzie; Chairman of Board of Directors, L. C. Smith.

NEWS OF THE WORKS.

Iron and Steel.

The recent statement in these columns that the Texas Rolling Mill Company, Fort Worth, Texas, which succeeded the Fort Worth Iron & Steel Company, will have \$160,000 capital stock and will equip the plant to produce cotton ties, is incorrect. The capital stock of the company will be \$175,000, and the plant will be equipped to produce merchant bar iron, track spikes and bolts, truss rods, concrete bars, cross arm braces and wrought iron washers.

A Pennsylvania charter has been granted to the Stalnaker Iron Company, Pittsburgh, Pa. The company is composed of J. F. Robinson and Thomas A. Orr, well known in the iron and steel business in Pittsburgh, and H. D. Stalnaker.

The Harrisburg Rolling Mill Company, Harrisburg, Pa., will start its mills, which have been idle since May.

The Clark Steel Hoop Company, Punxsutawney, Pa., has been granted a charter, the directors being S. A. Rinn, Lon Pantall, J. A. Mader, E. E. McKibben and H. G. Bowers.

Plans are being perfected for the reorganization of the Southern Car Wheel Iron Company, Tallapoosa, Ga., which is in the hands of A. V. Howe as trustee. It is the intention to place the plant in operation at an early date.

The report that the Phillips Sheet & Tin Plate Company, Clarksburg, W. Va., is to enlarge its plant is somewhat in error, as the company is only making some alterations in the finishing departments.

The Algoma Steel Company, Sault Ste. Marie, Ont., whose steel plant was closed down July 17, hopes to place it in operation again at an early date.

The Temple Iron Company, Reading, Pa., has completed important improvements to its furnace, increasing the weekly capacity from 750 to 1200 tons. The report that the furnace will blow in in two weeks is incorrect, the company stating that the furnace will not be put in blast until the demand for iron increases materially.

No. 1 Etowah Furnace of the Alabama Consolidated Coal & Iron Company at Gadsden, Ala., recently banked, has again been put in operation.

The Keystone Steel Company, which, as previously announced in these columns, has purchased the Wilmington Rolling Mills, formerly operated by the Seldel & Hastings Company, Wilmington, Del., is rebuilding and remodeling the plant and adding a 90-in. plate mill, which will give the company 48, 54, 80 and 90 in. plate and sheet mills. When these improvements are completed a bar mill will be added. The charcoal iron forge department will also be remodeled and put in economical working condition. The company will manufacture special Keystone wrought steel floor plates, of ribbed, diamond and checkered patterns, up to 72 in. wide, for which the necessary special machinery will be installed. The manufacture of knobbed hammered charcoal iron blooms and plates, made by the same process that was used by the Seldel & Hastings Company, will be continued. In the new bar mill special attention will be given to concrete bars, both twisted and plain, and special shapes. The new company is closely allied with the Rogers-Shear Company, Warren, Pa.

The Zenith Furnace Company expects to start up its furnace at West Duluth, Minn., in September, after relining and repairs.

One furnace of the Maryland Steel Company, Sparrows Point, Md., is being relined. A second furnace is idle and the other two are in blast.

It is now expected that the first four blast furnaces of the Gary, Ind., group of the Indiana Steel Company will be ready for blast about January 1.

The furnace of the Rockdale Iron Company, Rockdale, Tenn., which was put on ferrophosphorus July 3, is expected to continue on that product until August 15.

No. 1 furnace of the New Castle group of the Carnegie Steel Company was blown in July 7.

No. 1 furnace of the Shenango Furnace Company, Sharpsville, Pa., was blown in July 8, and No. 4 furnace of the same company was blown out July 29.

Furnaces Nos. 1, 2 and 4 of the National Tube Company, at McKeesport, Pa., are now in operation, No. 2 having been blown in July 16. Furnace No. 3 is still idle and no date has been set for its resumption.

The Wickwire Steel Company expects to put its new furnace, at Buffalo, N. Y., in blast in September.

The improvements being made at the Secaucus, N. J., furnace of the Hudson Iron Company will mean the practical rebuilding of the furnace. It will be made 80 ft. high, with 18-ft. bosh. Four new firebrick stoves will be built and new boilers added.

The No. 2 furnace of Richard Heckscher & Sons Company, Swedeland, Pa., is being relined.

The Sharpsville Furnace Company, Sharpsville, Pa., has completed the rebuilding of its furnace.

One of the two Allen's Creek furnaces of the Bon Air Coal & Iron Company, at Mannie, Tenn., is being relined.

The charcoal furnace of the Antrim Iron Company, Mancelona, Mich., which has been under repairs for some weeks, is now ready for blast.

The furnace of the Norton Iron Works, Ashland, Ky., was blown out July 12.

The Martins Ferry, Ohio, furnace of the Wheeling Steel & Iron Company, Wheeling, W. Va., was blown in July 18.

The Newburgh Furnace of the American Steel & Wire Company, Cleveland, Ohio, was blown in July.

The Columbus Iron & Steel Company, Columbus, Ohio, now has one of its two furnaces in blast. Both have been idle for a number of months.

The No. 3 furnace of the Lorain, Ohio, group of the National Tube Company was blown in July 12.

The furnace of the Bessie Ferro-Silicon Company at New Straitsville, Ohio, was blown in July 15.

The furnace of the Belfont Iron Works Company, Ironton, Ohio, was blown out July 15.

General Machinery.

The Fawcett Machine Company, Pittsburgh, has received an order for eight pairs of cut gears, which will be used in connection with sugar cane machinery in Cuba. The gears are 153 in. in diameter, 18 in. face, 5 1/4 in. pitch, made of cast steel with cut teeth. Other contracts include the operating machinery for Bascule draw and lift bridges in New York, Hammond, Ind.; New Orleans, La.; Aurora, Ill., and Sacramento, Cal.

The Sweet's Steel Company, Williamsport, Pa., is rebuilding its machine shop, which was recently destroyed by fire. The new building will be 46 x 163 ft., two stories high. As none of the large machines were burned, the damage being largely to the small tools, the company is replacing the latter as they are needed.

The business of A. C. Layman, Wilmington, Del., manufacturer of leather working machinery, &c., has been taken over by the A. C. Layman Machine Company, recently incorporated with a capital stock of \$10,000. Alfred C. Layman is president; Frederick W. Balston, treasurer, and H. Hugh Layman, secretary.

The Dobbie Foundry & Machine Company, Niagara Falls, N. Y., has closed a deal with a prominent engineering company through George F. Nye, vice-president, by which it will manufacture locomotive cranes. While the company will enter a new field, increasing its line somewhat, it does not expect to add to its equipment or increase its present capacity at the present time.

The Ontario Iron Works, Pulaski, N. Y., will erect a two-story brick addition to its plant, 54 x 150 ft., to be used as a machine shop.

E. A. Keiner, 60 North Main street, Gloversville, N. Y., is planning to erect a complete automobile garage, in connection with which he will install a well equipped machine shop. Work of erecting the building for the garage will start inside the next 60 days.

Power Plant Equipment.

Plans are being prepared by E. T. Archer, Kansas City, Mo., for an addition to the municipal lighting plant at Atlantic, Iowa. T. E. Nichols is City Clerk.

The Theresa Woolen Company, Theresa, N. Y., is starting construction on a 700-hp. hydro-electric power plant, which will be located back and below the stone mill. The plans call for first-class equipment in every respect, with steel flume and penstock and modern water wheels. The only work done so far is excavating for the power house building.

The Elmira Power Company, Elmira, N. Y., has plans under way for adding another 3000 hp. turbine engine at the electric power station. This unit will be a twin unit to the big engine that is at present generating all the power used at the plant.

The Council at De Funiak Springs, Fla., will receive bids until August 14 for the installation of a water works system to include a 75,000-gal. elevated tank, 500-gal. duplex pump, 60-hp. boiler, about three miles of 4 to 10 in. mains, deep well pump, 31 hydrants, valves, valve boxes, &c.

The Leland Electric Company, Leland, Mich., with a capital of \$30,000, has purchased the Leland Dam and will build a power house to generate enough electricity to light the towns of Leland, Northport, Suttons' Bay, Provost and Omena. Work has already commenced on this project, and it is expected to have the plant in operation by November 1, machinery equipment for which has already been purchased. F. E. Hatch is manager of the company.

At a recent election the citizens of Cumberland, Wis., voted to rebuild the electric light plant, and a committee has been appointed to consider the question. A. F. Wright is City Clerk.

Work has commenced on the construction of a new power station of 2850 hp. capacity for the Wausau Street Railway Company, Wausau, Wis., which will be equipped with two pairs

of turbine water wheels, generators and an exciter set. The contract for this equipment has been let to the Allis-Chalmers Company. It is expected to have the plant completed this year.

We are advised by T. E. Newby, City Clerk, Sidney, Iowa, that the Sidney Light, Heat & Power Company has secured a franchise for the establishment of an electric light plant in that city.

The hydro-electric plant being constructed on the Wallkill River at Walden, N. Y., by the Wallkill River Company is expected to be ready for operation this fall, developing 1720 hp. A fall of 33 ft. is obtained, and it is intended to eventually develop 3200 hp. The equipment has been purchased and will consist of one 800-hp. Ridsen-Alcott turbine water wheel, direct connected to 525-kw. Westinghouse generator; two 460-hp. wheels, each direct connected to 300-kw. generators, and two 50-hp. wheels for direct connection to exciter units. Power will be supplied to the electric railroad running between Walden and Newburg and to the Wallkill Valley Light & Power Company, New York Knife Company and other local industries.

The Onondaga County Commissioners, Court House Building, Syracuse, N. Y., are having plans prepared for detached power house building, with capacity for 1000 lights, to furnish power, heating and lighting at the Onondaga County Home. Specifications will be finished and bids called for about September 1. The power plant will contain three horizontal tubular boilers with capacity of 150 hp. each, equipped with shaking grates, ash and coal handling machinery, &c., and three generators direct connected to automatic high speed engines with capacity to generate 75 kw. each. The installation is to be made in connection with the new County Home buildings, which are now under construction at a cost of \$300,000.

The Water Commissioners, Dunkirk, N. Y., will receive bids for one 500 kw. turbo generator to be installed at the municipal pumping station, arc meters, transformers and arc lamps for the new 50-light series.

Foundries.

The Magnus Metal Company, Chicago, Ill., has established a foundry at South Pryor street and Southern Boulevard, Atlanta, Ga., for the manufacture of journal bearings and engine brass castings. The foundry is 80 x 200 ft., and is equipped with modern machinery. T. F. Kent has been appointed district manager at Atlanta.

The Board of Contract and Supplies, Yonkers, N. Y., will receive bids until August 17 for 1000 lengths of 8-in. B. and S. cast iron pipe, weighing 625 lb. per length, and 100 lengths of 4-in. pipe, weighing 280 lb. per length, the pipe to be delivered before October 1 at the Public Dock at Yonkers.

The Beggs Pipe & Foundry Company, North Birmingham, Ala., has suspended operations for an indefinite period.

The Iron City Foundry Company, Lebanon, Pa., has recently been formed to engage in the manufacture of cast washers, separators, special washers and hard iron castings. It will operate the foundry plant recently built in Lebanon by Harvey Ream and others. The officers of the company are: W. O. Steele, president; Frank H. Lehman, vice-president; Richard J. Boyer, secretary, and Harvey P. Dougherty, treasurer.

Bridges and Buildings.

The Fort Pitt Bridge Works, Canonsburg, Pa., is shipping three truss bridges, aggregating about 1400 tons, to the Chicago, Milwaukee & St. Paul Railroad, Seattle, Wash. These will be used in connection with that railroad's Pacific Coast extension. The company is also shipping two large viaducts, 500 tons each, one for East Canonsburg and one for Thompsonville, and 15 small bridges for the Pittsburgh Railway Company's extensions into Canonsburg, Pa.

The McClintic-Marshall Construction Company, Pittsburgh, works at Rankin, Carnegie and Pottstown, Pa., has recently made a shipment to the Chicago & Northwestern Railroad of 56 cars loaded with 1500 tons of structural steel, including 96 girders each 60 ft. in length, together with braces, cross frames and other shapes to be used in the erection of a bridge a mile east of Kansas City.

The New York Central Railroad has finished plans and bids will soon be called for the following steel viaducts to be erected in Buffalo: one at Elk street, over New York Central Railroad dock line tracks, 300 ft. span, 56 ft. roadway; one at Kensington avenue, over New York Central Railroad belt line tracks, 75 ft. span, 50 ft. roadway; 10 four-track railroad bridges ranging from 50 to 99 ft. spans over subways of Broadway & Belt Line tracks, Walden avenue, Box avenue, East Delavan avenue, East Ferry street, Fougerson street, Urban street, French street, Sycamore street, Genesee street, and belt line tracks.

The Buffalo Structural Steel Company, Buffalo, N. Y., has been awarded the steel work for a \$25,000 church building to be erected at Military road and Grote street.

The Wm. B. Scaife & Sons Company, Pittsburgh, Pa., has received contract for the new steel frame buildings required for the extension to the plant of the Driggs-Seabury Ordnance Corporation at Sharon, Pa.

Boiler & Hodge, consulting engineers, 1 Nassau street, New York, are completing plans for a 1400-ft. double track structural

steel viaduct with concrete abutments, to be constructed near Westfield, N. Y., for the Western New York Construction Company, acting in the interest of the Buffalo & Lake Erie Traction Company, of which W. A. Alderman is chief engineer, 530 Brisbane Building, Buffalo. Bids will be received by the engineers in New York and by owners at Buffalo.

Plans are being prepared in the office of the State Engineer, Frederick Skene, Capitol Building, Albany, N. Y., for the construction of three steel bridges at Ithaca at the following streets: Buffalo street, State street and Seneca street. Bids will soon be called for by the State Commissioner of Public Works. The appropriation for the work is \$125,000.

The Lehigh Valley Railroad, Walter G. Berg, chief engineer of bridges and roadway, New York, has awarded contract to the Pennsylvania Steel Company for erecting a steel bridge over Fall Creek in Ithaca, N. Y.

Fires.

The plant of the Enterprise Foundry Company, Sackville, N. B., was destroyed by fire July 30, the loss being about \$40,000.

On July 31 the plant of the E. D. Jones Steel Ball Bearing Company, on Military road, a short distance north of Buffalo, N. Y., was damaged by fire to the extent of \$150,000. Foundry No. 1, a two-story building 200 x 200 ft., was completely destroyed. The new buildings, recently completed and occupied, were saved from serious damage. Many thousand dollars' worth of machinery were destroyed and will have to be replaced. The main offices are in Boston, Mass.

Hardware.

R. F. Struthers, Peoria, Ill., has leased a three-story and basement structure, 44 x 132 ft., of brick construction, in Omaha, Neb., for manufacturing copper cable lightning rods and ornaments, fencing, gates and iron posts. Mr. Struthers also operates plants of similar nature in Peoria, Ill., and Des Moines, Iowa.

Miscellaneous.

Under the title of Huntsville & Chattanooga Interurban Electric Railway & Power Company a new corporation has been formed at Huntsville, Ala., with a capital of \$50,000, to build an electric road to the Fair Grounds. It is the purpose of the company to build a power house near the Fair Grounds for the operation of this road, but for the present power will be supplied by the Nashville, Chattanooga & St. Louis Railroad.

The Johnston Harvester Company, Batavia, N. Y., has let contract for the tearing down of its present blacksmith shop of brick and replacing it with a concrete building 80 x 176 ft., with monitor roof and second-story balcony rooms at sides, which will be used as bolt room and sample room, respectively. A new building will also be constructed for the knife department, 43 x 200 ft., one story in height, in which material from the dismantled blacksmith shop will be utilized in part.

The Board of Aldermen, Vicksburg, Miss., will receive bids until September 7 for a complete system of house sewers, approximating 30 miles of 8 to 27 in. pipe, with 400 manholes and 100 flush tanks. Specifications can be secured from Walter G. Kirkpatrick, engineer, Jackson, Miss.

The Rochester Railway & Light Company, Rochester, N. Y., R. M. Searle, general manager, is arranging to install oil burning apparatus in its steam power plant on the river flats north of the Platt street bridge, for the purpose of eliminating smoke. Crude oil will be used and a storage tank with a capacity of 1,000,000 gal. will be constructed. Work on construction will start about October 1.

The General Fireproofing Company, Youngstown, Ohio, is furnishing cold twisted lug bars to be used as a reinforcement for a concrete roof on a new engine house at Mattie Furnace of the Girard Iron Company, Girard, Ohio.

The report that the Brier Hill Coke Company of Youngstown will build a large addition to its coke plant at Brier Hill, Fayette County, Pa., is untrue. This plant now contains 400 ovens, only part of which are in operation.

The Third Avenue Railroad Company is receiving estimates on the construction of a four-story car barn, 129 x 136 ft., on 130th Street, New York.

The Buffalo, Lockport & Rochester Rolling Stock Company of Niagara Falls, N. Y., with a capital stock of \$50,000, has been incorporated to build railroad equipment by S. F. Carr, R. D. Moore and W. M. Wheeler. Offices for the present will be at 45 Erie County Bank Building, Buffalo.

Horning & Wolf have filed plans for a two-story brick factory building to be erected at 163 Adams street, Buffalo, N. Y., which will be operated as a tin can factory. The factory will be running about November 15.

The Tennessee Blow Pipe Company, Chattanooga, Tenn., recently incorporated with a capital stock of \$25,000, has taken over the completely equipped shop and business of the old company of the same name. The organization has been completed by the election of R. L. Wright, president; C. A. Ryerson, vice-president, and C. C. Crawford, secretary and treasurer. The general management of the business will be under the direction of Mr. Crawford, and Mr. Ryerson will be in charge of the shop work.

The Iron and Metal Trades

Pig Iron production in July shows a substantial gain over that for June—a total of 1,217,897 gross tons of Coke and Anthracite Iron in the 31 days of last month, as compared with 1,092,131 tons in June. The number of furnaces active at the beginning of the month was 161, a net gain of 10 over the number one month previous. The weekly Coke and Anthracite capacity active August 1 was 284,590 tons; on July 1 it was 264,452 tons—a gain of over 20,000 tons, or at a yearly rate of more than 1,000,000 tons. The daily rate of production was 39,287 tons in July, as against 36,444 tons in June. Steel works and merchant furnaces showing nearly the same ratio of gain in the month.

Our Cleveland correspondent reports that the contract has just been signed for the sale of about 1,000,000 tons of Lake Ore for delivery over a series of years. A number of long time contracts are expiring and negotiations for renewal are under way. Eastern furnacemen have thus far purchased but little Ore, but the feeling is gaining that no concessions need be expected.

There has been quite a pronounced movement in Pig Iron, our Cincinnati correspondent reporting sales of Southern Iron to Cast Iron Pipe manufacturers, agricultural implement makers and stove and heater manufacturers aggregating 60,000 tons. There has been further business in moderate lots of Foundry Iron in New England and in different parts of the seaboard territory. It is reported also, but not confirmed, that a firm of merchants has purchased a large block of Southern Iron. An Eastern Pennsylvania Plate mill has taken 10,000 tons of Basic Pig. On the whole, all this business was closed at the prices recently prevailing, but there is a disposition now in the South and elsewhere to withdraw from the market at that level.

A number of the mills have shared in the Baltimore & Ohio Steel Rail order, which amounts to about 14,000 tons. The Chesapeake & Ohio order, calling for about 10,000 tons, has now been entered, as has also that of the Boston & Maine for 7000 tons.

Some good work is in prospect for the Structural mills. It is expected that within 30 days the order will be given out for 12,000 tons for the new City Hall at Chicago, and during the fall the Northwestern is to begin on terminals in Chicago, which will ultimately require 33,000 tons. In New York there are coming up 7000 tons for the Hoyt Estate, 5000 to 6000 tons for Emigrant Savings Bank, and the material for a 22 story office building on the Everett House site, about 5000 tons. This week 2250 tons of bridge work for the Seaboard Air Line was contracted for. During July the total amount of fabricated work is estimated to have been 60,000 tons, of which the American Bridge Company booked 19,000 tons.

While the bids have been opened for the Steel Pipe line on Long Island, it is not quite sure what course will be pursued. If Riveted Steel Pipe is adopted, made of $\frac{3}{8}$ -in. Plates, the tonnage will mount up to about 26,000 tons. If it is decided to make the line of Lock Bar Pipe with 7-16-in. Plates, the amount of Plates will be between 16,000 and 17,000 tons.

The National Tube Company will probably soon commence the manufacture of 120 miles of 20-in. Merchant Pipe and 60 miles of 18-in. Pipe for a gas line to Cincinnati, for which the company recently closed. Some large tonnages of Line Pipe are also on the books.

In the Copper market the most interesting feature is that exporters have again entered the market at the present level. There has been some good buying by domestic consumers for delivery as far as October, the market closing at 13½ cents for Electrolytic.

Spelter, too, has joined this upward movement and is now quoted at 4.80c., New York. Lead has risen to 4.60c., that price being announced to-day by the American Smelting & Refining Company.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

Aug. 5, July 29, July 1, Aug. 7,

1908. 1908. 1908. 1907.

PIG IRON, Per Gross Ton:

Foundry No. 2, Standard, Philadelphia	\$16.50	\$16.50	\$16.50	\$22.00
Foundry No. 2, Southern, Cincinnati	15.00	14.75	15.25	23.25
Foundry No. 2, Local, Chicago	17.00	17.00	17.50	24.50
Basic, delivered Eastern Penn.	15.00	15.00	15.25	21.00
Basic, Valley furnace	15.00	15.00	15.00	21.00
Bessemer, Pittsburgh	16.50	16.55	16.90	22.90
Gray Forge, Pittsburgh	14.90	14.90	14.90	21.90
Lake Superior Charcoal, Chicago	19.50	20.90	20.00	27.50

BILLETS, &c., Per Gross Ton:

Bessemer Billets, Pittsburgh	25.00	25.00	25.00	29.50
Forging Billets, Pittsburgh	27.00	27.00	27.00	33.00
Open Hearth Billets, Phila.	26.20	26.20	26.20	31.75
Wire Rods, Pittsburgh	33.00	33.00	33.00	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL, Per Gross Ton:

Steel Rails, Melting, Chicago	13.50	13.50	12.50	17.00
Steel Rails, Melting, Phila.	14.50	13.50	13.50	17.50
Iron Rails, Chicago	16.50	16.50	15.50	20.75
Iron Rails, Philadelphia	19.00	18.00	18.00	21.50
Car Wheels, Chicago	15.00	14.50	13.00	24.50
Car Wheels, Philadelphia	14.50	13.50	13.50	25.00
Heavy Steel Scrap, Pittsburgh	14.75	14.50	14.00	17.75
Heavy Steel Scrap, Chicago	12.50	12.50	11.50	15.50
Heavy Steel Scrap, Phila.	14.50	14.00	13.50	17.00

FINISHED IRON AND STEEL,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	1.40	1.35	1.35	1.85
Common Iron Bars, Chicago	1.50	1.50	1.50	1.78
Common Iron Bars, Pittsburgh	1.40	1.40	1.40	1.70
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.86
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York	1.76	1.76	1.76	1.86
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.70
Beams, Tidewater, New York	1.76	1.76	1.76	1.86
Beams, Pittsburgh	1.60	1.60	1.60	1.70
Angles, Tidewater, New York	1.76	1.76	1.76	1.86
Angles, Pittsburgh	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	1.45	1.45	1.45	1.85
Skelp, Sheared Steel, Pittsburgh	1.50	1.50	1.50	1.95

SHEETS, NAILS AND WIRE,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.40	2.40	2.40	2.50
Wire Nails, Pittsburgh	1.95	1.95	1.95	2.00
Cut Nails, Pittsburgh	1.75	1.75	1.75	2.10
Barb Wire, Galv., Pittsburgh	2.40	2.40	2.40	2.45

METALS, Per Pound:

	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	13.60	13.25	12.87½	19.50
Electrolytic Copper, New York	13.50	13.07½	12.62½	19.00
Spelter, New York	4.80	4.45	4.50	5.80
Spelter, St. Louis	4.70	4.35	4.35	5.75
Lead, New York	4.60	4.55	4.50	5.15
Lead, St. Louis	4.45	4.40	4.40	5.00
Tin, New York	30.70	30.40	27.20	38.60
Antimony, Hallett, New York	8.00	8.00	8.25	10.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York	\$3.89	\$3.89	\$3.89	\$4.09

Chicago.

FISHER BUILDING, August 5, 1908.—(By Telegraph.)

General business conditions throughout the West are improving steadily, and important lines in the Iron trade are beginning to feel the recovery. Building operations are active in the country, and this is reflected in the demand for Wire Nails which for the month of July exceeded the business done in the corresponding month of last year. The strong financial position of the farmer is also manifested in liberal specifications for the past week for agricultural Bars, which have awakened increased activity in the Bar mills. The railroads, although they are buying only for urgent repair work, are contributing a larger aggregate of smaller orders for Bars and track material, which has produced a better feeling in these lines. There is also a more active demand for Structural Steel for building purposes, and the architects report considerable business in prospect for the near future. The fabricators have had but little demand for bridge work in the past week, and other lines also report slow improvement. Sheets and Pipe are holding their own and Merchant Steel is more active. The stronger tone in Old Material has had a tendency to stiffen the prices of all finished products which are in any way based upon Scrap. To a considerable extent the strength in the Scrap market grows out of an increase in the consumptive demand, but this element is reinforced by the influence of large dealers who look for greater activity in the near future. Old Car Wheels have advanced again, as the Car Wheel foundries are more active and have been bidding for Old Wheels in the hands of dealers. There is increased buying of Copper and

Pig Iron, and on the whole it may be said that conditions are materially better. The reports from the Northwest of damage to spring wheat have excited some alarm in speculative circles, but general business conditions will not be seriously affected. Harvesting is already in progress in South Dakota and southern Minnesota, and will begin in North Dakota next week. There is some local damage from rust, but the country as a whole is assured of a good wheat crop, and corn is making good progress toward a large yield.

Pig Iron.—Western melters have not responded to the activity in the East by coming forward with any large orders or inquiries, but there has been a considerable increase in the aggregate of small orders for immediate shipment. The movement is not large, as compared with other years, but it adds an encouraging tone to the situation. Some of the Southern interests are holding for \$12.50, Birmingham; others are doing a fair volume of business at \$12, in small lots, and reports continue persistent that considerable No. 2 Iron is being sold at \$11.50. Northern Iron is being held at \$17, Chicago, but there are unconfirmed reports that Ohio furnaces are shading this price for Chicago delivery. It is the consensus of opinion that the foundries are melting a little more each week, and the growing volume of inquiries confirms the impression that their requirements are steadily increasing. Little business is being done for the fourth quarter. The favorite policy of buyers is to carry a small stock and replenish it by orders from week to week, in accordance with prospective requirements. The feeling seems to prevail among buyers that present quotations offer a fair profit to the furnace, and that for some months to come there will be furnace capacity to take care of the demand as it develops. Current orders show a tendency to outgrow the one car size and some lots handled the past week amounted to several hundred tons each. One inquiry pending from St. Louis is for 2000 tons. The following quotations are for August and September delivery, f.o.b. Chicago:

Lake Superior Charcoal.....	\$19.50 to \$20.00
Northern Coke Foundry, No. 1.....	17.50 to 18.00
Northern Coke Foundry, No. 2.....	17.00 to 17.50
Northern Coke Foundry, No. 3.....	16.50 to 17.00
Northern Scotch, No. 1.....	18.00 to 18.50
Southern Coke, No. 1.....	16.35 to 16.85
Southern Coke, No. 2.....	15.85 to 16.35
Southern Coke, No. 3.....	15.35 to 15.85
Southern Coke, No. 4.....	14.85 to 15.35
Southern Coke, No. 1 Soft.....	16.35 to 16.85
Southern Coke, No. 2 Soft.....	15.85 to 16.35
Southern Gray Forge.....	14.35 to 14.85
Southern Mottled.....	14.10 to 14.60
Malleable Bessemer.....	17.50 to 18.00
Standard Bessemer.....	18.40 to 18.90
Jackson Co. and Kentucky Silvery, 6%.....	19.00 to 20.40
Jackson Co. and Kentucky Silvery, 8%.....	20.00 to 21.40
Jackson Co. and Kentucky Silvery, 10%.....	22.90 to 23.40

(By Mail.)

Billets and Rods.—The only users of Billets in this market remain inactive, on account of the lack of orders for railroad equipment. The price of Forging Billets continues unchanged at \$28.50, base, Chicago. On Wire Rods the demand is nominal, and we quote: Bessemer, \$33; Basic, \$34; Chain, \$33, all at Pittsburgh.

Rails and Track Supplies.—No developments of importance are reported in Standard Rails, but there is considerable improvement in orders for Light Rails from mining and lumbering interests. In Light Sections last week was the best since September in the tonnage of orders booked, and this followed a considerable improvement the previous week. In Track Supplies there is also a notable improvement in the volume of small orders, one seller reporting the receipt of orders for 400 tons in the first mail this week. The railroads are placing fair orders for Spikes and Track Bolts for immediate shipment. The Santa Fe, which has not been in the market for months, ordered 2000 kegs of Spikes this week, and other roads are also contributing their quota to improved conditions in this line. Specifications for Angle Bars, amounting to more than 1000 tons, were received in this market last week. The Pennsylvania Steel Company is furnishing 800 tons of special Track work for the Chicago Railways Company. We quote, as follows: Angle Bars, accompanying Rail orders, 1908 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.20c. to 2.25c., base, Square Nuts, and 2.35c. to 2.40c., base, Hexagonal Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., \$28; 20-lb., \$29; 16-lb., \$30; 12-lb., \$31. Standard Sections, \$28, f.o.b. mill, full freight to destination.

Structural Material.—Bridge contracts have been few and far between. One amounting to 400 tons for a bridge at Chico Landing, Cal., was taken by the Toledo-Massillon Bridge Company, and one for the Salt Lake Depot of the Oregon Short Line, amounting to about 200 tons, went to the Minneapolis Steel & Machinery Company. The American Bridge Company booked less than 300 tons last week in small orders against an aggregate of 1400 tons the week before. In Structural Building Material conditions are more favorable. The tonnage booked last week was larger than for any week since October, and the month of July showed considerable improvement over previous months. The city officials

expect to place within 30 days the contract for 12,000 tons of Structural Steel for the new City Hall, and the Northwestern Railroad expects to begin work this fall on its new passenger terminal, which will call for 33,000 tons. A notable feature of the market the past month was the large number of small orders for Building Material. Prices from store are 1.95c. to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., 1/4-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c.

Plates.—The improvement in the demand for Plates is not so pronounced, but conditions are slightly better. The Sheared Plate mill at the Illinois Steel Company's South Works started up this week, but the accumulation of specifications is not large. There is a better demand for light Plates, and store shipments also show improvement. We quote mill shipments as follows: Tank Plates, 1/4-in. and heavier, wider than 6 1/4 and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for 1/4-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, 1/4-in. and heavier up to 72-in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets.—Roofing Sheets are doing better than other lines, and the trade on the whole is keeping an even course. Specifications are about in the same volume as last week, being restricted to immediate needs. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; No. 18, 2.28c.; No. 20, 2.38c.; No. 22, 2.48c.; No. 24, 2.58c.; No. 26, 2.68c.; No. 28, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.15c.; No. 12, 2.20c.; No. 14, 2.25c.; No. 16, 2.35c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—Specifications have been very satisfactory for Steel Bars. No new contracts of any importance have been taken, as the implement manufacturers have covered their requirements and no other interests are in the market, but the mills are getting enough specifications to give them a fair run for this month. The Republic Iron & Steel Company has started its Tudor Works at East St. Louis, and the Inland Steel Company has started its new mill. The railroads are also sending in specifications in encouraging volume for Bars for immediate shipment. They are starting their repair shops to get their equipment in shape for moving the fall crops, but the independent car shops have not shared as yet in this activity. Prices are unchanged and quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras; Iron Bars, 1.50c.; Hoops, No. 13 and lighter, 1.98c., full extra Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extra Steel Bar card; Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron, 2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras.

Merchant Pipe.—The improvement in the Pipe trade is slow and conditions are not yet satisfactory, although each week shows a little improvement. Specifications are confined to current needs and come in small lots, although the aggregate tonnage makes a fair showing. The following mill discounts are quoted: Black Pipe, 3/4 to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized, 3/4 to 6 in., 63.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, 3/4 to 6 in. About three points above these prices is asked for Iron Pipe.

Merchant Steel.—There has been a noticeable general improvement in the demand for general lines of Merchant Steel, and the implement manufacturers have made their appearance in the market with specifications for their requirements for the coming year. We quote, as follows: Cold Rolled Shafting, on contracts for 100 tons and over, 57 per cent. off; carloads, 56 per cent. off, and less than carloads, 52 per cent. off, on which carload freight is allowed within base territory. Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher price being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron finished, 1 1/2 x 1/2 in. and heavier, 1.40c.;

under 1½ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b., at mill.

Boiler Tubes.—This line is responding more slowly to the general improvement than the other branches of the Iron trade, but a little progress is reported in the volume of inquiries and sales from day to day. The reopening of railroad repair shops is making more demand for Locomotive Tubes for repair work, these orders being for immediate shipment in small lots. Mill quotations for future delivery on the base sizes are as follows: 2¾ to 4½ in., inclusive, Steel Tubes, 63.2; Iron, 50.2; Seamless, 50.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in.....	35	35	35
1½ to 2¼ in.....	50	35	35
2½ in.....	52½	35	35
2½ to 5 in.....	60	47½	47½
6 in. and larger.....	50	35	..

Cast Iron Pipe.—The contract for 1000 tons which was pending at Milwaukee last week was awarded to a local contracting firm which will make the purchase from the foundry. A considerable tonnage of small lots was bought last week, and the demand for Gas Pipe is improving. We quote nominally, per net ton, Chicago, as follows: Water Pipe, 4 in., \$27; 6 to 12 in., \$26; 16-in. and up, \$25, with \$1 extra for Gas Pipe.

Old Material.—The market for Old Material continues to show a stronger tone. There are more inquiries and orders from consumers for small lots, and the dealers who are working for higher prices feel encouraged. The foundries are more liberal in specifications for No. 1 Cast, and Turnings, Borings and Melting Steel are also stronger. The only offerings from railroads this week are a small lot of 400 tons from the Wisconsin Central and a list of between 4500 and 5000 tons from the Baltimore & Ohio. Old Car Wheels are bringing better prices. The leading Car Wheel foundries have been in the market the past week, but offers of \$15.25 only bring out small lots, as the dealers who took in Wheels last winter are holding for higher prices. We quote per gross ton, f.o.b. Chicago, as follows:

Old Iron Rails.....	\$16.50 to \$17.00
Old Steel Rails, rerolling.....	15.50 to 16.00
Old Steel Rails, less than 3 ft.....	13.50 to 14.00
Relaying Rails, standard sections, subject to inspection.....	19.00 to 20.00
Old Car Wheels.....	15.00 to 15.50
Heavy Melting Steel Scrap.....	12.50 to 13.00
Frogs, Switches and Guards, cut apart.....	13.50 to 14.00
Mixed Steel.....	10.25 to 10.75

The following quotations are per net ton:

Iron Fish Plates.....	\$15.50 to \$16.00
Iron Car Axles.....	17.50 to 18.00
Steel Car Axles.....	16.50 to 17.00
No. 1 Railroad Wrought.....	12.25 to 12.75
No. 2 Railroad Wrought.....	11.25 to 11.75
Railway Springs.....	12.50 to 13.00
Locomotive Tires, smooth.....	13.00 to 13.50
No. 1 Dealers' Forge.....	10.00 to 10.50
Mixed Bushing.....	7.50 to 8.00
Iron Axle Turnings.....	6.50 to 7.00
Soft Steel Axle Turnings.....	6.50 to 7.00
Machine Shop Turnings.....	6.50 to 7.00
Cast Borings.....	5.25 to 5.75
Mixed Borings, &c.....	5.00 to 5.50
No. 1 Mill.....	7.50 to 8.00
No. 2 Mill.....	6.00 to 6.50
No. 1 Boilers, cut to Sheets and Rings.....	9.50 to 10.00
No. 1 Cast Scrap.....	12.75 to 13.25
Stove Plate and Light Cast Scrap.....	11.00 to 11.50
Railroad Malleable.....	11.75 to 12.25
Agricultural Malleable.....	11.00 to 11.50
Pipes and Flues.....	9.50 to 10.00

Metals.—A better movement in Copper is noticed this week, and consumers are buying for stock instead of hand to mouth manner that has ruled for the past six months. Pig Tin, Lead, Desilverized, and Corroding are a little stronger. The gain in New Metals is reflected in Old Metals, for which there is considerable improvement in the demand. We quote as follows: Casting Copper, 13¼c.; Lake, 13¾c. to 14c., in car lots for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 33c.; small lots, 35c.; Lead, Desilverized, 4.65c. to 4.75c., for 50-ton lots; Corroding, 5c. to 5.10c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 4.85c.; Cookson's Antimony, 10¼c., and other grades, 9¾c. to 10¼c.; Sheet Zinc is \$7, list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 12¾c.; Heavy Copper, 12¼c.; Copper Bottoms, 10¾c.; Copper Clips, 11c.; Red Brass, 11½c.; Yellow Brass, 8¾c.; Light Brass, 6½c.; Lead Pipe, 4c.; Zinc, 3¾c.; Pewter, No. 1, 21c.; Tin Foil, 24c.; Block Tin Pipe, 27c.

The Passaic Steel Company, Paterson, N. J., has been ordered sold by the United States Court at Trenton. It will be sold under foreclosure of the mortgage held by the Citizens' Trust Company, as trustee of the 1902 issue of \$2,500,000 bonds. The court orders that the standing of the merchandise creditors with unsecured claims be in no wise prejudiced by the sale.

San Francisco.

SAN FRANCISCO, CAL., July 29, 1908.

After quite a period of dull times, the prospects have improved for the financing of a number of new projects in California and elsewhere on the Coast. Several large blocks of the new San Francisco city bonds have been spoken for, and there is every indication that the entire issue will be acceptable to investors, in spite of former adverse predictions in certain quarters. The validity of all the steps taken in the \$18,200,000 bond issue has just been certified to by Dillon & Hubbard, the New York experts, in a communication read before the Board of Supervisors. The bonds approved were the fire protection issue of \$5,200,000, the sewer issue of \$4,000,000, the school issue of \$5,000,000, the hospital issue of \$2,000,000, the Hall of Justice issue of \$1,000,000 and the garbage system issue of \$1,000,000. Plans have been announced recently for the erection of a number of new buildings of large size. Competitive designs will be received for the new structure which is to be erected upon the site of the old Hall of Justice on Kearny street.

Structural Material.—The building situation continues to be very active, and quite a number of Steel frame buildings are still in course of construction. Several more contracts for Steel frames are pending, but it is more than possible that the great bulk of the Steel erection work for the present year will have been awarded before long. During the balance of the season, however, a large force of mechanics will be occupied in finishing a number of large Class A structures that it will require about a year to complete. The Roebbling Construction Company and others have taken contracts, amounting to \$133,476, to erect a six-story Class A building for the Doe Estate, near the southwest corner of Sutter and Kearny streets. The American Bridge Company will supply 800 tons of Steel for this fine store building. The Smith-Rice Company will haul and erect the Steel for \$7246, and the Merle Ornamental Iron Company will furnish Ornamental Iron work, &c., for \$19,600. Contracts for Steel for two highway bridges in Sacramento County have been taken by the American Bridge Company, aggregating about 250 tons. A small Steel contract has also been taken by the same company for a Steel frame for a new saw mill for the San Vicente Lumber Company, near Santa Cruz, Cal. Steel shipments are coming through from the East in good time. Some of the local manufacturers are still agitating the subject of depending more upon local concerns for their supplies of Steel and ornamental Iron for building construction, although in many cases they would perhaps be unable to fill contracts direct in the required time owing to limited stocks of materials and high wages.

Pig Iron.—There is scarcely any improvement in the Pig Iron situation. Foundry work is still slack and materials are purchased from hand to mouth. The improvement in the mining districts will possibly help the local plants some before the end of the year. No Pig Iron has arrived by sea this month. Prices of English, Scotch and Chinese Pig Iron are about \$27 to \$28 per ton, ex-yard.

Cast Iron Pipe.—Business is looking up in this line, there being many inquiries in California. Prices are a little off owing to the continued low price of Pig Iron. The Dalmiel-Moller Company has been awarded a contract to supply a quantity of 10-in. Pipe for the San Francisco Park Commission at \$32.50 per ton. The Board of Works of San Diego, Cal., will order Pipe for the University Heights water line at once. The United States Cast Iron Pipe & Foundry Company has been awarded the contract for 975 tons of Gas Pipe for the City Gas Company, Los Angeles, Cal. It is ordinary bell and spigot Pipe in sizes of 4, 6, 10 and 12 in. Eastern capitalists have arranged to purchase the bond issue of the Owens River aqueduct system authorized by the city of Los Angeles in the sum of \$23,000,000. The money for the first block of the bonds purchased will be available within a few months. The Board of Water Commissioners of Santa Barbara, Cal., will purchase about 18,000 ft. of Pipe for new mains. The prices of Cast Iron Pipe, f.o.b. Pacific Coast terminals, are about as follows: 6, 8, 10 and 12 in., \$32 to \$33; 4-in., \$33 to \$34.

Merchant Pipe.—While stocks are reduced considerably, there is not much of a demand for Merchant Pipe at present. Increased buying by the local jobbers will be necessary before long. Discounts on Steel Pipe are about as follows on jobbers' carloads:

	Steel.	Black.	Galv.
1/8 to 1/4 in.....	56.5	56.5	40.5
3/8 in.....	58.5	58.5	44.5
1/2 in.....	60.5	60.5	48.5
3/4 to 6 in.....	64.5	64.5	54.5
7 to 12 in.....	61.5	61.5	46.5
Extra strong, plain ends:			
1/8 to 1/4 in.....	49.5	49.5	37.5
3/8 to 1/2 in.....	56.5	56.5	44.5
3/4 to 8 in.....	52.5	52.5	40.5
Double extra strong, plain ends:			
1/2 to 8 in.....	45.5	45.5	34.5

Coke.—The Coke market is rather quiet, there not being much local demand for foundry purposes. The smelters are

in the market as usual for the cheaper grades, of which there is a moderate stock on hand. The Selby Smelting & Lead Company's plant at Selby, Contra Costa County, which was a large consumer of Coke, is still closed down on account of an injunction suit brought by farmers, who alleged damage from the fumes. The only arrival of Coke since the first of July was a shipment of 2400 tons from Newcastle, Australia, July 14, consigned to H. M. Newhall & Co. Comparatively little Coke is now en route from foreign countries to this port. The demand for Australian Coke is weaker than a year or two ago. English and Scotch Foundry Coke are quoted in this market at about \$14 per ton; German Syndicate, \$13, and Australian, \$9.

The Risdon Iron Works has been awarded the contract for repairs to the army transport Logan, the price being \$275,000. The repairs are expected to occupy several months. The repairs on the transport Sherman, which were to cost about \$300,000, have been temporarily postponed owing to lack of an appropriation.

Pittsburgh.

PARK BUILDING, August 5, 1908.—(By Telegraph.)

Pig Iron.—There is more snap to the Pig Iron market than for some time. Inquiries are out for a great deal of tonnage for prompt shipment and also for delivery over the balance of the year. Production is gaining, to keep up with the increased consumption. Prices of Pig Iron are fairly steady, with the exception of Bessemer, which is weak, and lower. There are several rather aggressive sellers of Bessemer just now, and several lots have been sold as low as \$15.40, Valley furnace, or \$16.30, Pittsburgh. We quote sand cast Bessemer Iron at \$15.50, Malleable Bessemer at \$15; Basic, \$15; No. 2 Foundry, \$14.50 to \$14.75, and Gray Forge, nominally, \$14, all at Valley furnace, the freight to Pittsburgh being 90c. a ton. We note sales of 600 tons of Bessemer at \$15.50, and one lot of 300 tons, and one lot of 200 tons, the latter for Cleveland delivery, at \$15.40, Valley furnace. A sale is also reported of 1000 tons of Standard Bessemer for delivery in the Newcastle, Pa., District, at \$15.40, Valley furnace.

Steel.—We note a sale of 500 tons of Sheet Bars and 1000 tons of Tin Bars at full official prices. There is practically no new business coming up in Billets. We quote Bessemer and Open Hearth Billets, 3 $\frac{3}{4}$ in. and larger, up to and including 0.25 carbon, \$25; 0.26 to 0.60 carbon, \$1 extra; over 0.60 carbon, \$2 extra, all f.o.b. Pittsburgh. For Wheeling, Martins Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight or 50c. additional is charged. Sheet and Tin Bars in random lengths are \$27 f.o.b. Pittsburgh. Forging Billets take \$2 advance over Rolling Billets

(By Mail.)

We continue to report improved conditions in the Steel trade. These were decidedly more pronounced in the past week, and there is no doubt in the minds of a majority that the long expected turn has come and that the whole Steel trade is on the way to better things. If the railroads were buying one-half or even one-fourth of their usual requirements the Steel trade would be in splendid condition. As it is, with the railroads buying practically nothing, more than 50 per cent. of the Steel capacity is active, this demand coming entirely from consumers aside from the railroads. There is a prospect of some early business in Steel Rails, a start having been made by the Baltimore & Ohio, which has placed 14,000 tons, and the Chesapeake & Ohio, 5000 tons. More inquiries are out for Pig Iron, and the market is fairly firm with the exception of Bessemer, which has gone down squarely to \$15.50 at furnace, several small sales having been made as low as \$15.40 at furnace. The Steel plants are running to better capacity than for some time, and the Carnegie Steel Company will start up its Mingo Junction plant, in part, during the latter part of August. The demand for Finished Iron and Steel is showing betterment, jobbers and large consumers placing orders more freely and for larger tonnages. Plates are showing a little better demand, and some large tonnage has been closed in Pipe. The Scrap trade is more active than for some months, and prices on some lines have again advanced. A peculiar feature of the situation just now is that Heavy Steel Scrap is bringing higher prices than Basic Pig Iron. A few months ago Basic Iron was selling as much as \$3 a ton higher than Scrap. The Coke trade continues very quiet and prices do not show any betterment whatever.

Ferromanganese.—We continue to quote foreign 80 per cent. Ferro at \$44, seaboard, or \$45.95, Pittsburgh, for bal-

ance of this year delivery. For early shipment \$43.50, seaboard, or less, could be done, and we note a sale of about 100 tons for spot shipment to a large Western consumer on the basis of about \$43.50, seaboard.

Ferrosilicon.—We continue to quote 50 per cent. at \$67.50 to \$70, Pittsburgh. We do not hear of any recent sales in this market.

Muck Bar.—It is reported that one or two mills rolling Iron Bars are quietly feeling the market for a fairly large tonnage of Muck Bar, but as yet nothing has actually been done. We continue to quote best grades of Muck Bar made from all Pig Iron at \$26, Pittsburgh, but on a firm offer it is probable a less price would be made.

Rods.—Although not much inquiry is reported, the market is fairly strong. We continue to quote Bessemer Rods at \$33; Basic, \$34, and Chain Rods, \$33, Pittsburgh.

Skelp.—Reports are going of some very low prices being made on Steel Skelp rolled on universal mills. The demand is showing betterment and some business has recently been closed. We quote: Grooved Steel Skelp, 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.60c. to 1.70c., and Sheared Iron Skelp, 1.70c. to 1.75c., f.o.b. Pittsburgh.

Steel Rails.—Prospects in the Steel Rail trade are better, and it is believed that within the next month some fairly large orders will be given out. The Baltimore & Ohio Railroad has placed 14,000 tons, of which Carnegie Steel Company will roll about one-half, and the Chesapeake & Ohio has placed 5000 tons, most of which came to Pittsburgh. Some fairly large foreign orders for both Standard Sections and Light Rails have recently been placed; in fact, the actual tonnage entered for some time by the Carnegie Steel Company for export has been larger than in domestic. The three Edgar Thomson Rail mills of the Carnegie Steel Company are operating to about 35 per cent. of capacity. A leading rerolling Rail mill has advised us that it has again advanced its prices on rerolled Light Rails \$1 a ton. Prices now being generally quoted on Light Rails are as follows: \$25 for 25 to 45 lb. Sections, with \$1 advance for 20 lb.; \$2 advance for 16 lb., and \$4 advance for 12 lb. Standard Sections are \$28, at mill, and Angle Splice Bars 1.65c., at mill.

Plates.—The contract has not yet been placed for the 26,000 tons of Plates to be used in making Steel Pipe for the extensions to the Brooklyn Water Works, but the T. A. Gillespie Company, of this city, was the lowest bidder. If it gets the work the Plates will be furnished by a Pittsburgh mill. The general demand for Plates is showing betterment, consumers placing orders more often and for larger tonnages. The Carnegie Steel Company will furnish the Plates for a very large gas line for Cincinnati, recently closed by the National Tube Company. We quote, Tank Plates, $\frac{3}{4}$ in. thick, 6 $\frac{1}{4}$ in. up to 100 in. wide, 1.60c., base, at mills, Pittsburgh. Extras over this price are as follows:

Tank, Ship and Bridge quality, $\frac{1}{4}$ in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel Plates up to 72 in. wide, inclusive, ordered 16.2 lb. per square foot, shall be considered $\frac{1}{4}$ -in. Plate. Steel Plates over 72 in. wide must be ordered $\frac{1}{4}$ -in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under $\frac{1}{4}$ -in. to and including 3-16-in.

Plates on thin edges.....\$0.10

Gauges under 3-16 in. to and including No. 8......15

Gauges under No. 8 to and including No. 9......25

All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....10

Complete Circles.....20

Boiler and Flange Steel Plates.....10

"A. B. M. A." and ordinary Firebox Steel Plates.....20

Still Bottom Steel.....30

Marine Steel.....40

Locomotive Firebox Steel.....50

Shell grade of Steel is abandoned.

For widths over 100 in. up to 110 in......05

For widths over 110 in. up to 115 in......10

For widths over 115 in. up to 120 in......15

For widths over 120 in. up to 125 in......25

For widths over 125 in. up to 130 in......50

For widths over 130 in.....1.00

TRUCKS.—Net cash in 30 days. Pacific Coast base, 1.50c., f.o.b. Pittsburgh.

Structural Material.—Inquiries are decidedly better, and the leading Structural interests inform us that more actual new tonnage is being placed than for some time. The McClintic-Marshall Construction Company has taken 600 tons for a new building for the Marion Steam Shovel Company, Marion, Ohio, and about 600 tons for a building to cover the puddling mill to be built by A. M. Byers & Co. at Girard, Ohio. Local work in sight includes a new bridge across the Monongahela River between Allegheny and Washington counties, near Monongahela City, Pa., which will take 5000 to 6000 tons. Plans for this structure are to be ready about August 15. We quote as follows, f.o.b. mill, Pittsburgh: I Beams, H. Beams and Channels, 3 to 15 in., inclusive, 1.60c. net; Beams over 15 in., 1.70c. net; Angles, 3 to 6 in., inclusive, $\frac{1}{4}$ in. and up, 1.60c. net; Angles, over 6 in.,

1.70c. net; Angles, 3 x 3 in. and up, less than $\frac{1}{4}$ in., 1.50c., base, half extras, Steel Bar card; Tees, 3 in. and up, 1.65c. net; Zees, 3 in. and up, 1.60c. net; Angles, Channels and Tees under 3 in., 1.50c., base, half extras, Steel Bar card; Deck Beams and Bulb Angles, 1.90c. net; Hand Rail Tees and Z-19, 3c. net; Checkered and Corrugated Plates, 3c. net.

Sheets.—The demand for Black and Galvanized Sheets continues to improve for the lighter gauges, and July business showed a large gain over June. The American Sheet & Tin Plate Company is now operating about 50 per cent. of its capacity. Prices are fairly well maintained, being shaded by only two or three of the outside mills. For mill shipment we quote: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c. No. 28 Painted Roofing Sheets, \$1.75 per square, and Galvanized Roofing Sheets, No. 28, \$3.10 per square, for $2\frac{1}{2}$ -in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade under the usual conditions, jobbers charging the usual advances for small lots from store.

Tin Plate.—The new demand for Tin Plate is very dull, but the mills are fairly busy on specifications against contracts which are being received in good volume. Tin Plate prices continue firm, and we quote at \$3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Hoops and Bands.—Some increase is seen in the amount of new business, and specifications against contracts are coming in at a fairly satisfactory rate. Regular prices are as follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars, Pittsburgh, in carload lots, for delivery during 1908.

Iron and Steel Bars.—The large consumers of both Iron and Steel Bars are now covered by contracts placed some time ago, and as a result not many new orders are being placed, but the mills are fairly busy on specifications against these contracts which are now being received in good volume. The leading makers of Steel Bars—the Republic, Carnegie and Jones & Laughlin companies—are now running to over 50 per cent. of their capacity, with good prospects of operating more fully in the near future. The demand for Iron Bars is only fair, but is showing some betterment. The market is firm, and we are advised that regular prices are being held. We quote Iron Bars at 1.40c., base, for Pittsburgh delivery, and 1.35c., base, for Western points, to which freight is added, except Chicago, the price for which is 1.50c., delivered. We quote Steel Bars at 1.40c., Pittsburgh, for base sizes.

Merchant Steel.—Some miscellaneous orders are being received, but in a general way new business is light, and were it not for the fact the consumers have commenced to specify against contracts the mills would have very little to do. We are advised that the July shipments of three or four of the leading mills showed some increase over June. We quote: Cold Rolled Shafting, on contracts for 100 tons and over, 57 per cent. off; carloads, 56 per cent. off, and less than carloads, 52 per cent. off, on which carload freight is allowed within base territory. Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher price being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron finish, $1\frac{1}{2}$ x $\frac{1}{2}$ in. and heavier, 1.40c.; under $1\frac{1}{2}$ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b., at mill.

Railroad Spikes.—Two or three of the leading roads are in the market with inquiries for a fairly large tonnage, but as yet little actual business has been closed. The Spike trade so far this year has been unsatisfactory, being less than one-fourth of what it was in the same period last year. We quote: Standard sizes, $4\frac{1}{2}$ x 9-16 in., at \$1.70, and the smaller sizes at \$1.80 per 100 lb. in carload and larger lots, with an advance of 5c. per 100 lb. for less than carload, f.o.b. Pittsburgh.

Merchant Pipe.—It is probable that within a short time the National Tube Company will commence to roll 120 miles of 20-in. and 60 miles of 18-in. Line Pipe for a natural gas line in Cincinnati, for which the company recently closed a contract. The Hope Natural Gas Company, an interest of the Standard Oil Company, has placed some large tonnages in Line Pipe in the past month. In a general way, the Pipe mills are quite busy on lap weld Pipe, but in butt weld are not so active. Shipments in July by the leading Pipe mills showed a slight increase over June. We are advised that regular prices on Pipe are being firmly maintained. Dis-

counts on Steel Pipe, $\frac{1}{4}$ to 6 in., to the large trade are now 76 and 5 per cent. off list. Regular discounts are as follows:

Merchant Pipe.	Jobbers, carloads, Steel.	
	Black.	Galv.
$\frac{1}{2}$ to $\frac{1}{4}$ in.....	67	51
$\frac{3}{8}$ in.....	69	55
$\frac{1}{2}$ in.....	71	59
$\frac{3}{4}$ to 6 in.....	75	65
$\frac{1}{2}$ to 12 in.....	72	57
Extra strong, plain ends:		
$\frac{1}{4}$ to $\frac{3}{8}$ in.....	60	48
$\frac{1}{2}$ to 4 in.....	67	55
$\frac{3}{4}$ to 8 in.....	63	51
Double extra strong, plain ends:		
$\frac{1}{2}$ to 8 in.....	56	45

Discounts on Genuine Iron Pipe are as follows:

	Black.	
	Black.	Galv.
$\frac{1}{4}$ to $\frac{1}{2}$ in.....	65	53
$\frac{3}{8}$ in.....	67	55
$\frac{1}{2}$ in.....	69	57
$\frac{3}{4}$ to 6 in.....	73	63
$\frac{1}{2}$ to 12 in.....	70	55
Extra strong, plain ends:		
$\frac{1}{4}$ to $\frac{3}{8}$ in.....	58	46
$\frac{1}{2}$ to 4 in.....	65	53
$\frac{3}{4}$ to 8 in.....	61	49
Double extra strong, plain ends:		
$\frac{1}{2}$ to 8 in.....	54	43

Boiler Tubes.—There has been some buying of Railroad Tubes by the railroads, and more business is pending. The demand for Merchant Tubes is only fair. Regular discounts on Merchant Tubes in small lots, on which an extra 5 per cent. is allowed in carloads, but which discounts are being shaded, are as follows:

Boiler Tubes.	Iron.	
	Iron.	Steel.
1 to $1\frac{1}{2}$ in.....	42	47
$1\frac{3}{4}$ to $2\frac{1}{4}$ in.....	42	59
$2\frac{1}{2}$ in.....	47	61
$2\frac{3}{4}$ to 5 in.....	52	65
6 to 13 in.....	42	59
$2\frac{1}{2}$ in. and smaller, over 18 ft. long, 10 per cent. net extra.		
$2\frac{3}{4}$ in. and larger, over 22 ft. long, 10 per cent. net extra.		

Iron and Steel Scrap.—The improved condition in the Scrap trade noted in this report for the past two or three weeks continues. The demand is more active, and better prices are being obtained than for some months. The advent of the Pittsburgh Steel Company into the market as a heavy buyer of Steel and other kinds of Scrap has no doubt stimulated the market to some extent. It is reported that this company has bought in the past two or three months upward of 15,000 tons of Heavy Steel Scrap, its purchases having been made through a local dealer. Prices on Scrap are firm, and we quote per gross ton: Heavy Steel Scrap, for Pittsburgh, Steubenville and Sharon delivery, \$14.75 to \$15; Cast Iron Borings, \$9.25 to \$9.50; No. 1 Railroad Wrought Scrap, \$14.50 to \$15; No. 1 Cast Scrap, \$14.50 to \$14.75; Bundled Sheet Scrap, \$12 to \$12.25; Sheet Bar Crop Ends, \$18 to \$18.25; No. 1 Busheling Scrap, \$13.50 to \$14; No. 2, \$10 to \$10.50; Iron Axles, \$20.50 to \$21; Steel Axles, \$19 to \$19.50; Low Phosphorus Melting Stock, 0.04 and under, \$19; Re-rolling Rails, \$15.50 to \$16; Machine Shop Turnings, \$10.25 to \$10.50; Grate Bars, \$12.50 to \$13; Railroad Malleable Scrap, \$13.50 to \$14; Old Car Wheels, \$14.50 to \$15. We note sales of 1000 tons of Heavy Steel Scrap at prices ranging from \$14.50 up to \$15; 500 tons of Cast Iron Borings, at \$9.75, and 1000 tons of Turnings, at \$10.50, f.o.b. Pittsburgh.

Coke.—The Coke trade does not show much if any betterment, either in demand or prices, but we note that the Frick Coke Company has started up some more ovens, due to the heavier demand for Furnace Coke from the Carnegie Steel Company, which has recently started some additional furnaces. We quote Standard Connellsville Furnace Coke for prompt shipment at \$1.50 to \$1.55, and for shipment over balance of the year at \$1.65 to \$1.75, at oven. Connellsville 72-hr. Foundry Coke is held at \$2 to \$2.25 for balance of the year shipment, but other grades are offered as low as \$1.85, at oven. The output of Coke last week in the Upper and Lower Connellsville region was 188,799 tons, an increase over the previous week of about 3000 tons.

St. Louis.

ST. LOUIS, August 3, 1908.

Bank clearings are increasing month by month. In the beginning of the year the loss in clearings when compared with those of the corresponding month last year was 12 per cent., and now it is only 5 per cent. In the last two weeks there has been a gain. This conclusively proves that general business is improving slowly, but surely. The railroad situation is getting better, and all interests dependent on supplying materials report an increased demand from the leading lines in this section. Inquiry for Pig Iron is now extending into the first half of 1909, and a somewhat pronounced speculative inquiry is developing for Spelter, Pig Lead and Zinc. In finished Iron and Steel, the largest interest reports the past week brought the greatest tonnage in orders since the first of year.

Coke.—The demand for Coke continues fairly active, though mainly for small contracts. The market holds steady and firm at \$2.15 to \$2.50, f.o.b. ovens, Connellsville, for 72-hr. Foundry. Virginia is held at \$2.25 to \$2.50, at oven.

Pig Iron.—At the close of the past week more interest had developed for Pig Iron. While early in the week there were reports of transactions around \$11.50, Birmingham, for No. 2 Foundry, it is thought if such sales were made it was reselling of purchases made speculatively. So far as known, Iron is not being offered by local parties at less than \$12. A leading seller reports inquiry for 1500 tons for last quarter, and another for 500 to 1000 tons for the same delivery. We learn also of the sale of 1000 tons, delivery over first half of 1909. All of the above inquiries and sales are for Southern Iron.

Finished Iron and Steel.—Sales agents report the continuance of a good demand for Structural Material, and also a growing demand for Track Supplies. From jobbers, orders are more liberal for Bars, &c.

Lead and Spelter.—The market is more active, and prices are higher. A marked disposition toward speculative buying has recently developed. For Spelter, 4.60c. is bid, for August and September, for any quantity. Lead is stronger, at 4.45c. bid, and 4.50c. asked. Zinc Ore is higher, \$35 per ton, Joplin basis, being bid, with an upward tendency at the close. A good demand is noted for the finished products.

Old Materials.—Such activity as exists is mainly confined to dealers, among whom a feeling of confidence is increasing with respect to there soon being more demand from consumers. There is more inquiry for Car Wheels, and the price has advanced. We quote dealers' prices, per gross ton, f.o.b. cars, St. Louis, as follows:

Old Iron Rails.....	\$14.50 to \$15.00
Old Steel Rails, rerolling.....	13.50 to 13.75
Old Steel Rails, less than 3 ft.....	13.00 to 13.50
Relaying Rails, standard sections, subject to inspection.....	23.00 to 24.00
Old Car Wheels.....	13.50 to 14.00
Heavy Melting Steel Scrap.....	12.50 to 13.00
Frogs, Switches and Guards, cut apart.....	13.00 to 13.50
Mixed Steel.....	9.00 to 9.50

The following quotations are per net ton:

Iron Fish Plates.....	\$12.50 to \$13.00
Iron Car Axles.....	16.00 to 16.50
No. 1 Railroad Wrought.....	12.50 to 12.75
No. 2 Railroad Wrought.....	11.25 to 11.50
Railway Springs.....	10.50 to 11.50
Locomotive Tires, smooth.....	12.00 to 12.50
No. 1 Dealers' Forge.....	9.50 to 10.00
Mixed Borings, &c.....	4.00 to 4.50
Machine Shop Turnings.....	7.00 to 7.50
No. 1 Boilers, cut to Sheets and Rings.....	7.00 to 8.00
No. 1 Cast Scrap.....	11.00 to 11.50
Stove Plate and Light Cast Scrap.....	9.00 to 9.50
Railroad Malleable.....	9.75 to 10.25
Agricultural Malleable.....	9.00 to 9.50
Pipes and Flues.....	8.00 to 8.50

The Standard Sanitary Mfg. Company, Pittsburgh, manufacturer of plumbing supplies, has leased a large store at Fourth and Chestnut streets, and will establish a branch depot at St. Louis.

The Commonwealth Steel Company reports the demand from railroads improving, and it is now employing 400 men. The fiscal year, which has just closed, shows a balance on the right side of the ledger.

The Hoyt Metal Company states that the market is stronger, and the demand for manufactured products is better. It looks for a good business in August.

The National Enameling & Stamping Company will reopen its plants next week, employing 4000 men.

The Elliot Frog & Switch Company, East St. Louis, will give employment to 400 additional men August 15. The Republic Iron & Steel Company will put on 200 more men, increasing its force to 1000. The American Car & Foundry Company, it is reported, will give employment to 800 men at its Madison, Ill., plant in a week or two.

Birmingham.

BIRMINGHAM, ALA., August 3, 1908.

Pig Iron.—A decided change in the status of the Pig Iron market has taken place. Considerably more interest is manifested by purchasers, while the aggregate of actual engagements is very satisfactory in all cases. The tonnage available at lower figures than \$12, Birmingham, on a No. 2 Foundry basis, seems to have entirely disappeared, and for early shipment there is even a tendency to advance quotations. One large producer has adopted a schedule of \$12.50, Birmingham, and quotes only for the remainder of the third quarter. Another large interest adheres firmly to a similar schedule, while two additional concerns are known to have refused round tonnages in the past week at figures slightly under \$12.50 per ton. In still another instance, 1000 tons only was accepted where 6000 tons was available at the same price. Among the sales reported, the principal one is a lot of 2000 tons of No. 2 Foundry, for third quarter delivery, at \$12 per ton, Birmingham. The sale of 1000 tons, for

the last quarter, was effected at a slight departure from a basis of \$12.50, Birmingham. A lot of 1000 tons of 2 to 2.50 per cent. Silicon, for prompt shipment, brought \$12.50, Birmingham, and 300 tons for immediate delivery and Silicon over 3 per cent. specified sold at \$13.50 per ton. The sale of 100 tons of No. 2 Soft at \$12, Birmingham, is reported, as well as an aggregate of 2000 tons, for delivery within three months, at \$11.75 per ton. The latter tonnage represents transactions early in the week, however. The indifference of all producers as to 1909 engagements is marked, but there has been a number of inquiries for such delivery. A Cast Iron Pipe manufacturer is making inquiries for 25,000 tons for delivery extending into next year, and lots of 2000 and 1500 tons each, for the remainder of this year, are pending. The production has not been curtailed by reason of the scarcity of fuel, but all operators are more or less apprehensive.

Cast Iron Pipe.—The principal order reported placed during the week was for 800 tons of Water Pipe for the city of Burlington, N. C., awarded to the United States Cast Iron Pipe & Foundry Company. A number of smaller lots has recently been booked, but the aggregate is considerably under the report of last week. There are no new lettings of consequence added to the list for the near future. Developments relative to the advance in freight rates are being awaited with much interest by producers, and the present inactivity is not greatly deplored. No doubt the slight demand is partially due to the general vacation of purchasing interests usually expected at this season. The output of all Southern plants is being moved satisfactorily, and the capacity in operation is close to normal. We quote Water Pipe as follows, per net ton, f.o.b. cars here: 4 to 6 in., \$23; 8 to 12 in., \$22; over 12-in., average \$21, with \$1 per ton extra for Gas Pipe.

Old Material.—Further indications of an improvement in the demand are in evidence, and quotations are not without additional strength. The fact that announcement has again been made that the mills of the former largest consumer in this district will soon be put in operation is the most encouraging feature, but the tonnage actually being moved increases gradually. Nominal quotations on some grades are revised, and we quote as follows, per gross ton, f.o.b. cars here:

Old Iron Rails.....	\$14.50 to \$15.00
Old Iron Axles.....	15.50 to 16.00
Old Steel Axles.....	12.50 to 13.00
No. 1 Railroad Wrought.....	13.00 to 13.50
No. 2 Railroad Wrought.....	9.50 to 10.50
No. 1 Country Wrought.....	10.00 to 10.50
No. 2 Country Wrought.....	9.00 to 9.50
No. 1 Machinery.....	10.00 to 10.50
No. 1 Steel.....	9.50 to 10.00
Wrought Pipe and Flues.....	8.50 to 9.00
Light Cast and Stove Plate.....	8.50 to 9.00
Cast Borings.....	5.00 to 5.50

Philadelphia.

PHILADELPHIA, PA., August 4, 1908.

The market has taken on a somewhat better appearance the past week, and the tonnage of orders placed, both for Pig Iron and some classes of finished materials, shows an improvement. While the individual orders are usually small, the number shows an increase, and the trade generally is quite optimistic regarding future business. The trend of the market appears to be in the right direction, and it is believed that if we can continue to maintain during August and September the slight steady gains which have been recently experienced, the trade will be on a fair way toward more rapid improvement during the fall months, but it is not believed that anything like normal conditions can be attained during the remainder of the present year.

Pig Iron.—A somewhat better volume of business has come out the past week, and the market is taking on a somewhat stronger tone. Sales of Foundry Iron in varying tonnages have been made, usually at full prices, and buyers show more disposition to place orders. In a number of instances furnaces report shipments in the month of July to have exceeded their present productive capacity, some by as much as 25 per cent., while many sellers have their output for the next month or so pretty well sold up. On some grades a number of producers are practically out of the market as far as third quarter deliveries are concerned, and they show little disposition to force fourth quarter business, even at an advance in price. Sales of No. 2X Foundry have been more numerous and range from carloads for prompt shipment to lots running up to 1000 tons for third quarter delivery, prices ranging from \$16.50 to \$17, delivered, dependent on brand and how anxious the seller is for business. A sale of 600 tons of No. 2 Plain for prompt shipment is reported at \$16.25, delivered. Some good inquiries for No. 2X Foundry are before the trade, running from 1000 to 4000 tons, for delivery in the last four months of the year. Some fair lots of this grade for August and September shipment are also being inquired for, while several lots of 1000 and 1500 tons of No. 2 Plain for fairly prompt shipment are being quoted on. New England and central and northern Pennsylvania interests appear to be the chief buyers at the

time, the melters in this immediate territory, except the Pipe foundries, being rather quiet. The Virginia furnaces in some cases report pretty heavy sales the past week. One interest disposed of a total of 4000 tons, mostly No. 2X Foundry, the greater portion of which was for shipments beginning at once and extending over the next two and three months. This Iron was largely for shipment to foundries in the central part of the State, at prices equivalent to \$17 for No. 2X, delivered, in this territory. Some smaller lots of Virginia No. 2X Foundry for shipment in the last half of the year are also reported at \$17.25, delivered, in this vicinity. For strictly fourth quarter shipment this grade is being pretty firmly held at close to \$17.50, delivered. Southern Foundry Iron appears to be somewhat stronger, and while it is still understood that \$11.50, Birmingham, might be done for No. 2 Foundry in a few instances, other sellers who have been taking orders for the third quarter at \$12 for this grade have advanced their price for such delivery to \$12.50, Birmingham. Little activity, however, has been shown in Southern Iron. Some of the Pipe foundries are in the market for fair sized lots, but it is understood that the business has not yet been placed. Forge Iron has not been active, but there are more inquiries in the market for this grade and sellers generally are pretty firm on the price. A sale of 300 tons for prompt shipment at full prices is reported. Some business continues to be done in Basic Iron, a sale to one of the Eastern Steel plants being reported, covering about 10,000 tons for last half delivery at a price believed to be close to the market. Low Phosphorus Iron is quiet but firm. The general situation is stronger, and some sellers who have sold up pretty fully for the next three months talk higher prices, but there is still a plentiful supply of Foundry Irons around at figures represented by the following quotations, for delivery in buyers' yards, eastern Pennsylvania and nearby territory, during the third quarter; for strictly fourth quarter delivery, however, an advance of 50 cents a ton rules, dependent on brand and tonnage:

Eastern Pennsylvania, No. 2 X Foundry.....	\$16.50 to \$17.00
Eastern Pennsylvania, No. 2 Plain.....	16.00 to 16.50
Virginia, No. 2 X Foundry.....	17.00 to 17.25
Virginia, No. 2 Plain.....	16.50 to 16.75
Gray Forge.....	15.00 to 15.50
Basic.....	15.00 to 15.25
Low Phosphorus.....	21.00 to 21.25

Ferromanganese.—The demand is light, the only sale reported during the week being a single carload for prompt shipment. Prices still show a wide range. Some sellers offer prompt Ferro in small lots at \$43.50 to \$44, seaboard. For shipment during the last half, however, quotations vary from \$44 to \$46, Baltimore.

Steel.—The demand is irregular. Orders coming out are for small tonnages only, and practically all for prompt shipment. The outlook is not very encouraging. Prices are unchanged. For delivery in this territory Ordinary Rolling Steel is quoted at \$26.20, with Forging Steel at \$28.20, subject to the usual extras for high carbons and special shapes.

Plates.—A material improvement was noted in the demand for Steel Plates the past week. Orders were larger and more numerous, and specifications on contracts came out more freely. Mills have gained in tonnage and show an increased output. Several good propositions are before the trade. Some fair orders for bridge, tank, boiler and locomotive Steel were placed during the week, and the trade feels more encouraged regarding future business. Prices are firm, as follows, for delivery in this territory:

	Carloads, carload.	Parts
	Cents.	Cents.
Tank, Bridge and Boat Steel.....	1.75	1.80
Flange or Boiler Steel.....	1.85	1.95
Commercial Firebox.....	1.95	2.00
Marine.....	2.15	2.20
Locomotive Firebox Steel.....	2.25	2.30
The above are base prices for ¼-in. and heavier.		
ing extras apply:		
3-16-in. thick.....		\$0.10
Nos. 7 and 8, B. W. G.....		.15
No. 9, B. W. G.....		.25
Plates over 100 to 110 in.....		.05
Plates over 110 to 115 in.....		.10
Plates over 115 to 120 in.....		.15
Plates over 120 to 125 in.....		.25
Plates over 125 to 130 in.....		.50
Plates over 130 in.....		1.00

Structural Material.—A fair demand continues for Structural Shapes, and some mills notice a continued slight gain in tonnage. Producers in this territory report the month of July as the best so far this year, and feel much encouraged in regard to future business. Orders are usually of a miscellaneous character, and range from small to medium in size. Some large building propositions are being figured on, but nothing in the way of a large tonnage has been recently closed. Prices are firm, and range from 1.75c. to 1.90c., according to specification, for delivery in this territory.

Sheets.—Business continues fairly active, but the tonnages placed are small and for prompt shipment. Mills continue to operate at full capacity, but have little forward business on their books, being dependent on current orders to keep them occupied. Quotations for mill shipments range

as follows, a tenth extra being added for small lots: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—The market for Iron Bars shows further strength. Orders come out more freely, and are of larger size, and mills, as a rule, show an increase in production, although nearly all are still running on a restricted basis. Prices are stronger, and while it is still possible to place desirable orders at 1.35c., delivered, the majority of sellers hold Refined Iron Bars at 1.40c. to 1.45c., delivered in this territory. Steel Bars are dull, at 1.55c., delivered in this vicinity, with Rolled Bars at 1.50c.

Coke.—The market has been rather quiet. Some little business has been done in Foundry Coke, for delivery over the balance of the year, but buyers in a number of cases would like to contract for 12 months' supply, which sellers are not inclined to do at to-day's prices. Furnace Coke is quiet. Quotations are unchanged, Foundry Coke ranging from \$2.15 to \$2.35, at oven, with Furnace Coke at \$1.50 to \$1.75, at oven. For delivery in this territory the following range of prices is quoted:

Cornellsville Furnace Coke.....	\$3.65 to \$3.90
Foundry Coke.....	4.30 to 4.50
Mountain Furnace Coke.....	3.25 to 3.50
Foundry Coke.....	3.90 to 4.10

Old Material.—Sales during the week have been small, but the market grows steadily stronger. Firm offers of \$14.50 for Heavy Melting Scrap are reported, but the majority of holders decline to let any large tonnage go at that price. The railroad lists out this week, from lines in this territory, offer about 25,000 tons of Re-rolling Rails and 5000 tons of Heavy Melting Steel for sale, but it is believed that bids will have to be better than ruling prices to get the Material, as the railroads are apparently inclined to hold for higher prices. The Pennsylvania Railroad is said to have sold about 6000 tons of Re-rolling Rails at about \$16 on the line of road. Sales of small lots of rolling mill Scrap are reported, but sellers are not disposing of a heavy tonnage at to-day's figures. Prices on the leading grades show an advance over those of last week. Mills, however, largely refuse to enter the market at the present level, and most of the business has been transacted between dealers. We quote nominally as follows for deliveries in buyers' yards, eastern Pennsylvania and adjoining territory:

No. 1 Steel Scrap and Crops.....	\$14.50 to \$15.00
Low Phosphorus.....	18.00 to 18.50
Old Steel Axles.....	19.00 to 19.50
Old Iron Axles.....	22.00 to 22.50
Old Iron Rails.....	19.00 to 19.50
Old Car Wheels.....	14.50 to 15.00
Choice No. 1 R. R. Wrought.....	17.00 to 17.50
Machinery Cast.....	14.00 to 14.50
Railroad Malleable.....	13.00 to 13.50
Wrought Iron Pipe.....	13.50 to 14.00
New Bundled Sheets.....	12.00 to 12.50
No. 1 Forge Fire Scrap.....	11.50 to 12.00
No. 2 Light Iron.....	7.50 to 8.00
Wrought Turnings.....	10.50 to 11.00
Stove Plate.....	12.00 to 12.50
Cast Borings.....	9.50 to 10.00
Grate Bars.....	12.50 to 13.00

Cincinnati.

CINCINNATI, OHIO, August 5, 1908.—(By Telegraph).

If August's opening may be taken as a criterion, the third quarter bids fair to make a beginning of the anxiously awaited and long deferred improvement in Iron and Steel, gauged by the inquiries and actual transactions in Pig Iron. The machinery markets do not show up to special advantage, aside from some very good sales of the heavier and more expensive types. The average manufacturers of small and medium-sized standard tools do not report encouragingly, but the close relationship does suggest that the tool market must soon respond to the activity of the crude product. Local manufacturers who have been visited evidence a decidedly optimistic trend, and as a rule all establishments are anticipating a resumption of shop activity in the early fall. Late correspondence contains some good inquiries, some of which comes from the railroads. With preparations under way and arrangements made, the close of the third quarter should show but one idle plant in this center. One large foundry, a rolling mill and several small concerns which have been shut down for some time are arranging for the early resumption of work.

Pig Iron.—An estimate based on a personal visit and inside knowledge places the tonnage of Southern Iron sold within the past week at not less than 60,000 distributed among Pipe companies, the harvest people and stove and heater manufacturers. Of this amount an agency representing the largest commercial interest has disposed of probably 25,000 tons. A number of Southern furnace interests have advised their representatives here that they have withdrawn from the market. Others name a price of \$12.50, Birmingham, No. 2, withholding authority to quote anything less for the third and fourth quarter. A wire from one of the largest Southern interests to its local representatives this afternoon withdraws all quotations and suggests that offers be submitted to the furnace direct at not

less than \$12.50 basis. The Pipe interest, most conspicuous in the week's transactions, bought for August and September delivery from one Southern furnace 6500 tons at a price of about \$11.50, Birmingham, for delivery to Anniston, Chattanooga and Addiston plants. It is understood that the selling price was immediately put up to the \$12 basis. A large manufacturer of sanitary appliances bought in this market on Monday about 2800 tons of Southern Iron for delivery to its Southern plant. The original inquiry was for 8000 tons, divided between 3300 tons of Northern and 4700 tons of Southern. It is expected that the Northern business will go to Valley interests through Pittsburgh. Of the Southern inquiry, divided into 500 tons of Forge, 1800 tons of No. 2 Soft, 800 tons of No. 2 Foundry and 700 tons of No. 3, about 2800 tons was secured in this market, the Foundry Iron selling on a basis of about \$11.50, Birmingham, for No. 2, and the Forge at about \$10.50, only small lots of this grade been available. Some investment Iron is said to have been secured at the minimum figure, about 5000 tons going, it is said, to certain capitalists who are interested in the Old Material markets. There are a number of inquiries, ranging from a couple of cars to 350 and 4000 tons. Among these a central Ohio melter asks for two carloads of Foundry Iron running 2.25 per cent. and over in Silicon, and a Michigan automobile concern for 350 tons of various grades, both Northern and Southern. A large agricultural implement manufacturer asks for 5000 to 6000 tons for shipment to its Ohio plant, August and September delivery, and some a little later. A manufacturer of heating apparatus asks for prices on 5000 tons of Northern analysis Iron for delivery to its Illinois plant. A central Ohio stove maker wants 500 tons of low grade. A Michigan agricultural implement interest would like quotations on 2000 to 3000 tons of analysis Iron for the first half, and in this one of the newest of the Ohio furnaces is likely to figure prominently. Ohio Silvery, 8 per cent. Silicon, is still quotable at \$18.50, at furnace. In this connection are strenuous denials that any Ohio interest has taken a pound of business at less than this price, which has been established some time in this market. There is some demand for standard Car Wheel Irons, Southern Charcoal being quoted at \$19, at furnace, and Northern at \$21.75. Northern Foundry Iron is not specially active, but the price of \$15, at furnace, seems to be well maintained on all ordinary transactions. For immediate delivery and to close of fourth quarter we quote, f.o.b. Cincinnati, as follows, freight rates being \$3.25 from Birmingham, and \$1.20 from the Hanging Rock District:

Southern Coke, No. 1.....	\$15.50 to \$16.00
Southern Coke, No. 2.....	15.00 to 15.50
Southern Coke, No. 3.....	14.50 to 15.00
Southern Coke, No. 4.....	14.25 to 14.75
Southern Coke, No. 1 Soft.....	15.50 to 16.00
Southern Coke, No. 2 Soft.....	15.00 to 15.50
Southern Coke, Gray Forge.....	14.00 to 14.50
Ohio Silvery, 8 per cent. Silicon.....	19.70
Lake Superior Coke, No. 1.....	16.70 to 17.20
Lake Superior Coke, No. 2.....	16.20 to 16.70
Lake Superior Coke, No. 3.....	15.70 to 16.20
Standard Southern Car Wheel.....	22.25 to 22.75
Lake Superior Car Wheel.....	21.75 to 22.25

(By Mail.)

Coke.—The Coke market has undergone little change since our last report. Production is increased slightly in the Connellsville field, as, also, in the Virginia districts, to take care of furnace demands in the South because of strike troubles there. In the case of the Wise County product, it is reported that the ovens are sold up for two months, the price ranging from \$1.75 to \$1.85, at oven. Indicating that Alabama operators are not confident themselves of being able to abate the strike before the first of the year, a sale involving the shipment of 12,000 tons a month for the last half is cited. The Pocahontas product is weak because of continued inactivity in that district. Standard Foundry grades are quotable in this market at \$2 to \$2.10, at oven, for spot shipment, and on contract about \$2.25.

Finished Iron and Steel.—July closed with a fair showing of business for the times, but taken as a whole the local market is sluggish. Dealers are holding prices, and the hand to mouth purchases that are being made now are at prices that have governed for the better part of a year. Some Structural Steel has been sold for Southern shipment and some Sheet piling and twisted Bars for State work at Columbus. Consumers are not taking material on contract as rapidly as dealers would desire, and collections are only fair. Iron Bars are dull, and Steel Bars are duller. Dealers' prices to the trade are as follows, f.o.b. Cincinnati: Iron Bars, carload lots, 1.65c., base, with half extras; small lots from store, 1.85c., base, half extras; Steel Plates, carload lots, 1.75c., base, with half extras; small lots from store, 1.85c., base, half extras; Base Angles, carload lots, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, 1/4-in. and heavier, carload lots, 1.85c.; small lots from store, 2c.; Blue Annealed Sheets, heavy, No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; No. 10, and heavier, carload lots, 1.95c.; small lots from store, 2.20c.;

No. 12, carload lots, 2c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in. and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—August has opened with little or no interest manifested in the Scrap markets, and prices show weakening in all the large markets, save Chicago. An exception might be made also of Heavy Melting Steel Scrap, which has gained in strength steadily; and the price here is firm at about \$12 to \$13 per gross ton. Offerings from railroads include the New York Central, the Pennsylvania, Big Four and Pan Handle. Since in some instances these offerings are duplicates of former ones, it is assumed by the dealers that railroads are simply feeling and are apparently determined to hold their Scrap for the higher prices which they feel inevitable soon. There is little or no demand for Re-layers. Some Cast Scrap has been sold from this market recently, but railroad Cast is very dull, with little or no movement. We quote dealers' prices f.o.b. cars Cincinnati, as follows:

No. 1 R. R. Wrought, net ton.....	\$10.50 to \$11.50
Cast Borings, net ton.....	4.50 to 5.00
Heavy Melting Steel Scrap, gross ton..	12.00 to 13.00
Steel Turnings, net ton.....	5.50 to 6.50
No. 1 Cast Scrap, net ton.....	11.00 to 12.00
Burnt Cast, net ton.....	8.00 to 9.00
Old Iron Axles, net ton.....	14.50 to 15.50
Old Iron Rails, gross ton.....	13.00 to 14.00
Old Steel Rails, long, gross ton.....	11.00 to 12.00
Old Steel Rails, short, gross ton.....	11.00 to 12.00
Relaying Rails, 56 lb. and up, gross ton	19.00 to 20.00
Old Car Wheels, gross ton.....	12.50 to 13.00
Low Phosphorus Scrap, gross ton.....	13.00 to 14.00

Cleveland.

CLEVELAND, OHIO, August 4, 1908.

Iron Ore.—No change has developed in the condition of the market, and only a small amount of buying is being done. The most important transaction the past week was the closing of a long time contract for about 1,000,000 tons of Ore, the delivery of which is to run over a period of several years. It is understood that this deal was virtually closed a number of weeks ago, but the contract was not signed until last week. A number of the long time contracts under which some of the furnace interests have been getting their Ore expire this year. Very little Ore has as yet been sold to Eastern consumers, but dealers say that the outlook for thus disposing of some Ore is somewhat better. The majority of the furnaces that bought Ore earlier in the season were in need of at least a portion of it for early consumption, and shipments are being freely taken on those contracts. Merchant Ore firms are following a conservative policy, and are not taking the chances of mining a large quantity of Ore which they might not be able to sell later in the season and thus be forced to keep it in stock piles until next year. Many of the consumers who are expected to place contracts before the close of the season are not ready to buy yet, and not much activity is expected in the market this month. A little more activity has been shown the past week in chartering vessel tonnage for Ore shipments, contracts having been closed for shipping about 500,000 tons of Ore. The Ore shipments are still light, although they show some improvement. Dock space is getting scarce, and it is probable that nearly all the Ore that is shipped late in the season will have to go forward directly to the furnaces. Ore prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; Old Range Non-Bessemer, \$3.70; Mesaba Non-Bessemer, \$3.50.

Pig Iron.—The market was slightly more active the past week than in the few previous weeks. While the sales were small in number, several fair sized tonnages were disposed of in this territory. We note the sales by one interest of 1200 tons of Malleable Bessemer for last half and first quarter delivery, at \$15.50; three lots of No. 2 Northern Foundry Iron, one of 300 tons, one of 1200 tons, and the other of 2500 tons, all at \$15.25 for last half delivery, at Ohio furnace. Another sale was 1000 tons of Foundry Iron by a local furnace on the basis of \$15.65, for No. 2, delivered, Cleveland. There was an inquiry from a southeastern Ohio consumer for 500 tons of Northern Foundry Iron, but it is understood that the order was placed in another territory. Local furnaces quote No. 2 Foundry Iron at \$15 to \$15.50, at furnace, the latter price being for local delivery. Valley furnaces quote No. 2 at \$14.75 for spot shipment and \$15 for balance of the year. A local furnace interest reports an improvement in inquiries for Basic Iron, having received inquiries in the past few days aggregating about 7000 tons. Prospective purchasers seem anxious to buy for a portion of their next year's requirements, the inquiries being for the balance of the year and the first and second quarters of 1909. While inquiries for Foundry Iron are scarce, furnacemen regard the outlook as somewhat better. The melt in this territory in July showed quite an increase over June, and a further increase in the consump-

tion is expected during August. Ella Furnace of Pickands, Mather & Co. has gone in blast on Bessemer Iron. For prompt shipment and for the balance of the year we quote, delivered, Cleveland, as follows:

Bessemer	\$16.55 to \$16.90
Northern Foundry, No. 1	15.75 to 16.25
Northern Foundry, No. 2	15.40 to 15.75
Northern Foundry, No. 3	15.00 to 15.40
Southern Foundry, No. 2	15.85 to 16.35
Gray Forge	14.90

Coke.—The market is very quiet and prices are weak. Considerable spot Furnace Coke has been thrown on the market at low prices, which has had the effect of lowering the contract price. We note the sale of one lot of Connellsville Furnace Coke at \$1.50, at oven, for third quarter delivery, and lower prices for spot shipment are reported. For the balance of the year delivery we quote Connellsville Furnace Coke at \$1.65 to \$1.75. For the same delivery we quote 72-hr. Foundry Coke at \$2 to \$2.15, at oven.

Finished Iron and Steel.—The improvement noted last week in specifications has kept up in a very satisfactory manner during the past week. A fair volume of orders for about all lines of Finished Material has been entered for early shipment. The orders are well scattered among the manufacturers and implement makers in this territory. During the week a leading producer closed contracts for about 50,000 tons of Finished Material. About all the important consumers are now under contract. Good sized specifications have been received from local jobbers for Structural Angles and Steel Bars. Mills that reroll hard Steel Bars report the closing of contracts for a fair volume of tonnage, and one rerolling mill that has been quite active in this territory among the implement people has advanced its base price on hard Steel Bars from 1.25c. to 1.30c. and 1.35c. While there is no additional work in sight requiring a large tonnage of Structural Material, there is good inquiry for small lots. In addition local plants are figuring on some important contracts for the Government in Panama and on the Pacific Coast, and other contracts in Canada that will require considerable tonnage of Structural Shapes and Plates. The Bar Iron situation shows no improvement, the demand being light. Some orders that are usually placed here have been taken by Eastern mills that are cutting the price \$1 or more a ton. The Union Rolling Mill, which has been idle since July 3, resumed operations yesterday, and the Empire, which closed down at the same time, will start up next week. Neither has much tonnage on its books. Jobbers report a slight increase in the volume of both their mill and warehouse orders. The demand for Sheets shows a slight improvement, although it is still light. Outside of some reported cutting by smaller mills on Sheets and Plates, prices are being well maintained. We quote Iron Bars at 1.45c., Cleveland, for car lots; Steel Bars at 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., base, Cleveland; and Plates, 1/4-in. and heavier, 1.70c., Cleveland. We quote Sheets, mill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. Jobbers quote Steel Bars out of stock at 1.65c. to 1.70c. Beams and Channels out of stock are 2c., and Plates, 1/4-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 3/4 to 5 in., are 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 71 per cent. discount.

Old Material.—The market is firmer, and advances in price were made in several grades during the week. Not many actual sales are reported, the market being unchanged in this regard, but there are more inquiries, especially for Steel Scrap, although inquiries are believed to be mainly for the purpose of testing the market. Many of the dealers are asking about 50c. a ton above the ruling market quotations, and expecting a further advance in price are not anxious to sell. Consumers are unwilling as yet to pay the advance in price. The railroad offerings this week include about 1000 tons to be sold by the Pennsylvania, 2500 tons by the Lake Shore and from 3000 to 4000 tons by the Baltimore & Ohio. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails	\$14.00 to \$14.50
Old Iron Rails	15.50 to 16.00
Steel Car Axles	17.50 to 18.00
Old Car Wheels	14.50 to 15.00
Relaying Rails, 50 lb. and over	22.00 to 23.00
Heavy Melting Steel	14.00 to 14.50
Railroad Malleable	12.50 to 13.00
Agricultural Malleable	11.00 to 11.50
Light Bundled Sheet Scrap	9.00 to 9.50

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles	\$16.00 to \$16.50
Cast Borings	6.50 to 7.00
Iron and Steel Turnings and Drillings	7.50 to 8.00
Steel Axle Turnings	8.50 to 9.00
No. 1 Busheling	11.50 to 12.00
No. 1 Railroad Wrought	13.00 to 13.50
No. 1 Cast	12.50 to 13.00
Stove Plate	10.00 to 10.50
Bundled Tin Scrap	8.00 to 9.00

Buffalo.

BUFFALO, N. Y., August 4, 1908.

Pig Iron.—The same condition prevails in the Pig Iron market that has existed for the past three weeks—a hopeful feeling with a slow but steady improvement—although the consumptive demand is small in the aggregate. There is very little inquiry for deliveries beyond the present half of the year, and furnaces do not encourage such buying. Prices are substantially the same as quoted last week, being approximately as below:

No. 1 X Foundry	\$16.00 to \$16.25
No. 2 X Foundry	15.25 to 15.75
No. 2 Plain	15.00 to 15.25
No. 3 Foundry	14.75 to 15.00
Malleable Bessemer	16.00 to 17.00
Gray Forge	14.75 to 15.00
Charcoal	20.00 to 20.50

Finished Iron and Steel.—The general conditions in Structural Material and other Finished Iron and Steel are better, and there is an undercurrent of optimism. Although orders are slow in materializing and the propositions now in hand are small, there are encouraging indications of larger business later.

Old Material.—The market is a little stronger with some improvement in demand; but it is principally a dealers' market, with a limited amount of business coming from consumers. Prices have advanced slightly, and there is an upward tendency. We quote, per gross ton, f.o.b. Buffalo, as follows:

Heavy Melting Steel Scrap	\$13.50 to \$14.00
No. 1 Railroad Wrought	14.00 to 14.50
No. 1 Railroad and Machinery Cast Scrap	14.00 to 14.75
Old Steel Axles	16.00 to 16.50
Old Iron Axles	18.00 to 18.50
Old Car Wheels	13.50 to 14.00
Railroad Malleable	12.50 to 13.00
Boiler Plate	11.50 to 12.00
Stove Plate	12.00 to 12.50
Grate Bars	11.00 to 11.50
Pipe	11.00 to 11.50
Wrought Iron and Soft Steel Turnings	7.00 to 7.50
Clean Cast Iron Borings	6.00 to 6.50
No. 1 Busheling Scrap	11.75 to 12.25

The German Iron Market.

BERLIN, July 21, 1908.

The situation in the Iron trade continues to grow worse. Various market reports agree that there is a steady deterioration of the general position. Everywhere supply exceeds demand, and prices, where not fixed by trade organizations, are being cut right and left. Consumers are still pursuing their policy of the past half-year of buying only for immediate requirements. The Stahlwerksverband, in making the previously mentioned price reduction on Billets, undertook to bring pressure on consumers to compel them to place longer contracts by making that reduction apply only to orders placed prior to July 15. That date has now passed, yet there is no news at hand indicating that the old price has been restored.

Pig Iron Production Declining.

The June statistics of Pig Iron production indicate that the deterioration of the trade position is beginning to tell more directly in reducing the output of this commodity. The make of the empire for that month was only 956,425 metric tons, which was the lowest production for any month since February, 1906. It was 54,492 tons less than in May, and 87,911 tons less than in June, 1907. The half-year's production reached 6,049,721 tons, which was 306,232 tons less than for the first half of 1907. The reduction, which was somewhat less than 5 per cent., fell chiefly in the June quarter.

This reduction may be regarded as very slight, in view of the most unsatisfactory state of the Iron trade generally. The cause for the maintenance of such a high rate of production under these circumstances is to be found chiefly in the fact that the great mixed works which use furnace gases for power development cannot blow out a furnace without seriously deranging their machinery plant. The gases have become such a valuable product that the furnaces are kept at full blast for their sake, even though Pig Iron may accumulate at the furnaces. By a curious coincidence the same thing is going on in the Coking industry. The gases from Coke ovens are largely utilized for heating boilers; and there is a steady market, with good prices, for the by-products. Thus Coke is accumulating in unusual quantities at the ovens, being already stated at 750,000 tons. The stocks of Pig Iron have risen to 500,000 tons or somewhat more; and the accumulation is almost wholly with the great mixed works which need the furnace gases. This curious development was aptly described by one of our journals a few days ago, which remarked that Pig Iron has become a valuable by-product of the furnaces and Coke ovens.

Exclusive Pig Iron Makers Dissatisfied.

The great companies can well afford to accumulate Pig, for they can be sure that it will be needed at their own

mills as soon as prosperity returns. Many of them had even to buy additional supplies during the past few years; what they accumulate is therefore but a guarantee against their own excessive requirements at some future time. With the numerous detached furnaces, however, the case is quite different. They cannot afford to smelt Iron and let it lie several years till they can find a market for it; hence the curtailment in production has fallen almost wholly upon them. That this has not tended to increase their satisfaction with existing syndicate arrangements goes without saying.

The greatest interest therefore attaches to the existing negotiations looking toward consolidating the four Pig Iron syndicates. Several meetings have been held on the subject, and a committee representing the four groups has been appointed to take the matter in hand and try to arrange satisfactory terms for a great national syndicate. The best informed authorities, however, speak of the difficulties in the way as being well-nigh insurmountable; and at this moment it looks extremely doubtful whether all the divergent furnace interests can be brought, as the Germans say, "under one hat." The uncertainty in this matter is at the moment one of the most depressing factors in the trade—it is causing consumers to hold back with their contracts, while producers are quite in the dark as to what market conditions are to be expected after the end of the year.

Controversy as to Import Duties.

Another factor causing a feeling of uncertainty is the quarrel over the duties on crude Iron and Steel and Scrap, to which reference was made a month ago in this correspondence. The open-hearth Steel men and the independent rollers are vigorously pushing their petition for the abolition of the duties, and, according to last accounts, nearly 60 works had signed. These concerns bitterly resent the course of the great mixed works of the Verband in representing the independent mills as behind the times and as engaged in a losing game because their mills cannot be run as economically as those of the great works, which begin with their own Ore and Coal supplies and carry the product through all stages of production. They claim, on the contrary, that many of the independent mills are better equipped for turning out high-class special products than the great works running on staples.

This controversy over the import duties has recently taken a new turn through a movement among the Siegerland mine owners in favor of putting a duty on Iron Ores. They claim that their mines have now been worked out to such a deep level that they need protection to compensate them for the increased cost of mining. The Siegerland Ore producers have just voted a 50 per cent. restriction of production, after having been running for some time on a 20 per cent. reduction. Although they recently reduced their price for roasted Ores to 16.50 marks in 10-ton lots, consumers show no inclination to buy. Some of the big companies displayed a disposition to place orders at lower prices; but these offers were rejected on the ground that the price just quoted already means a loss to the mine owners.

Steel Syndicate Shipments.

The shipments of the Verband in June amounted to 378,361 metric tons of Billets, Rails, and Structural Shapes, against 414,885 tons in May and 514,664 tons in June, 1907. With the exception of last December, the shipments of Billets were the lightest for three years or more. In Structural Shapes the movement was the lightest for four months. In the export trade with England the German mills are feeling the competition of Belgian producers of Billets; the latter are making prices there, and the Germans have to meet them or get themselves ruled out of competition. Billets and Muck Bars are sold at slightly above 75 marks, f.o.b. seaport. Basic Steel ingots and heavy blooms cost in the home market 82.50 marks, with 15 marks thrown off where the finished product is exported. The price of rough-rolled Ingots is 87.50 marks; Billets, 95; Muck Bars of the usual dimensions, 97.50, with 5 marks higher for Open Hearth Steel. Ordinary hardened Bessemer Steel for tool making purposes has been reduced to 132.50 to 135 marks, according to the quantities taken.

The price of Bars has been beaten down sharply by several of the big mixed works—the price of this commodity not being fixed by the Verband. They are selling at 95 marks, for export, f.o.b. seaport. Few if any mills are selling for home consumption below 100 marks, and some are demanding slightly more than that. Bars of Open Hearth Steel cost as much as 110 marks. Bars of Wrought Iron, in the ordinary commercial forms, have recently been reduced to 127.50 marks, delivered, when bought by nearby parties.

In heavy Plates there is sharp competition for what business comes on the market. Prices have accordingly been cut very low, and even then the mills are short of work in this line. Some Ship Plates are being taken for the navy, but orders for commercial vessels have almost entirely ceased to come in. There is also short buying of Boiler Plates, and consumers show a disposition to depress prices; but these seem to be held somewhat more firmly than hitherto. In Thin Sheets the situation has become slightly better, through

increased export business. In Tin Plates prices have been reduced, and makers are thus able to hold off English competition more successfully. The prices for ordinary Tank Plates of Basic Steel range between 110 and 112.50 marks, with 117.50 to 120 marks for Open Hearth. Basic Boiler Plates are seldom sold under 122.50 to 125 marks.

The Hardware Trade.

Conditions in all sections of the hardware trade are most unsatisfactory. The depression in the building trades has been severely felt by manufacturers of builders' hardware; and the export of such goods is light. At Solingen the cutlery trade is in a state of great prostration. Business with the United States remains at a low ebb, some of the shops having lost fully three-fourths of their usual volume of trade with America.

The manufacturers of firearms are pretty well employed, and the same thing is partly true of the machine tool shops; but the situation with the latter is gradually growing worse. At a recent meeting of the manufacturers in this branch rather pessimistic forecasts of the future were given. Most branches of the hardware trade are complaining that the prices of their materials are kept too high by the trade combinations in the iron industry.

Metal Market.

NEW YORK, August 5, 1908.

Pig Tin.—The visible supply throughout the world on July 31 was 15,962 tons, according to the statistics of the Tin trade, compiled by C. Mayer. This is the largest visible supply since February, 1904, at which time the price of Tin was hovering around 28c. per lb. The deliveries into consumption in the United States during July were smaller than expected, being 2300 tons. The stock in the United States, exclusive of Pacific ports, was 1390 tons, compared with 1543 tons at the end of the previous month. The shortage in the local supply which has been growing more troublesome for weeks will be relieved when the Verona arrives, which is expected August 10. This is the steamer which carries over 900 tons of Tin, and was delayed some three weeks. Trade this week has been light and the London holiday, August 3, caused a practical cessation of trade here that day. The news of the small deliveries in this country caused a slump in London August 4. Price changes during the week have been as follows:

	Cents.
July 30.....	30.60
July 31.....	30.75
August 4.....	30.50
August 5.....	30.70 to 30.75

Tin was sold August 4, for delivery during the last half of the month, at 30.35c. The arrivals so far are 135 tons, and there are afloat for American ports, 2245 tons. The London market closes at £137 12s. 6d., for spot, and £138 17s. 6d., for futures.

Copper.—Buying by domestic consumers continues, and prices have advanced easily and rapidly. Lake Copper is held at 13.00c. and Electrolytic at 13.50c. Sales of the latter have been made to exporters at this figure. It is difficult to determine whether actual business has increased so as to warrant the rapid advance, for apparently domestic consumption has not yet reached much over two-thirds of normal. That there has been good buying, however, is not disputed, and some sales have been made for September and October delivery. This is not the first move above 13.25c. since the panic, for on November 6 by an injudicious move Electrolytic was advanced to 14.75c., and the price was then allowed to sag to 13c. as far as domestic consumers were concerned until after an advance to around 14c. at the end of January. Late in March another movement carried the price to 13.25c. Considerable Lake has been disposed of for September and October delivery, and Electrolytic has likewise been purchased for those later months. Coupled with this continued buying of American consumers comes a further demand from Europe. The buying of foreign interests, although not aggressive, is persistent. The advance in Standard Warrants has been sharp, and amounts to about £1 15s. in the week. The London market closes to-day at £61 for spot and £61 17s. 6d. for futures. The exports of Copper in July were 17,790 tons, making an exportation of 181,661 tons for the first seven months of 1908, compared with 97,288 tons in the same months of 1907. The imports in June, statistics of which are now available, were 6100 tons. The total importation for the first six months was 39,000 tons, compared with 65,400 tons last year. The price of base Copper Wire was advanced for the third time in as many days. The latest price—Wednesday afternoon—was 15c., base, in carload lots.

Waterbury Average.—The Waterbury average for July was 13c.

Spelter.—Prices have advanced suddenly in a way peculiar to the Spelter market. Prime Western brands are now quoted at 4.80c. to 4.85c., New York, and 4.70c., St. Louis. This may be the result of some concerted action on the part of Spelter producers, as there has been no very heavy

buying movement. Many brass mills still have Spelter that cost them more money, and the activity at the galvanizing works is not pronounced as yet.

Pig Lead.—The market is firm but quiet. The leading interest to-day advanced the price of shipment Lead to 4.60c. in 50-ton lots. Spot Lead is also quoted at 4.60c. The St. Louis market is firm at 4.45c. to 4.50c.

Antimony.—The volume of business is small, and quotations continue largely normal, Hallett's being held at 8c. to 8.25c., Cookson's at 8.25c. to 8.50c., and outside brands at 7.75c. to 8c.

Nickel.—Prices are unchanged at 45c. for ton lots and 50c. to 55c. for smaller quantities.

Aluminum.—The base price of the leading producer continues unchanged at 33c. for No. 1 Ingots. Rods and Wire are held at 38c. and Sheets at 40c.

Tin Plates.—New business is quiet, but prices are absolutely unchanged at \$3.89, New York, and \$3.70, Pittsburgh, for 100-lb. IC, New York brands. In Swansea Welsh Plates are unchanged at 14s. 4½d.

Old Metals.—Prices have advanced ¼c. to ½c. per pound, but at the expense of the volume of business. Ideas of buyers and sellers are at a wider variance than usual, and in consequence the range in the following dealers' selling prices is somewhat wider than usual:

	Cents.
Copper, Heavy Cut and Crucible.....	12.50 to 13.00
Copper, Heavy and Wire.....	12.25 to 12.75
Copper, Light and Bottoms.....	11.25 to 11.50
Brass, Heavy.....	9.25 to 9.50
Brass, Light.....	7.50 to 7.75
Heavy Machine Composition.....	12.00 to 12.50
Clean Brass Turnings.....	8.25 to 8.50
Composition Turnings.....	9.50 to 10.00
Lead, Heavy.....	4.25
Lead, Tea.....	3.90
Zinc Scrap.....	3.25 to 3.50

Production of Spelter in 1907.—The U. S. Geological Survey has just issued an advance statement on the production of Spelter in 1907, compiled by C. E. Siebenthal. The production in the United States was 249,860 tons of 2000 lb., an increase of 11.2 per cent. over the previous year. The consumption of Spelter in 1907 is given at 228,509 tons, and in 1906 at 221,781 tons. The world's production in 1906 and 1907 is given as follows, in tons of 2000 lb. each:

Country.	1906.	1907.
Australia	1,131	1,098
Austria and Italy.....	11,883	12,522
Belgium	168,067	170,307
France and Spain.....	59,293	61,438
Great Britain.....	57,971	61,286
Holland	16,150	16,526
Poland	10,595	10,735
Rhine District.....	75,729	77,459
Silesia	150,282	152,611
United States.....	224,770	249,860
Totals	775,871	813,842

New York.

NEW YORK, August 5, 1908.

Pig Iron.—Inquiries are growing more numerous, and the market is more active. Quite a number of round lots of Foundry and Malleable Iron have been placed in New England, one interest purchasing 4000 tons of Foundry Iron. The Buffalo producers have again participated to a considerable extent in the New England market. We quote, at tidewater: Northern No. 1 Foundry, \$16.75 to \$17; No. 2 Foundry, \$16 to \$16.50, and No. 2 Plain, \$15.25 to \$15.50. Alabama Irons are quoted, \$16.50 to \$17, for No. 1 Foundry, and \$16 to \$16.25 for No. 2 Foundry.

Steel Rails.—The Baltimore & Ohio Railroad has placed orders amounting to something more than 14,000 tons. The Carnegie Steel Company was given 5200 tons and the Illinois Steel Company 1500 tons, most of the remainder going to the Pennsylvania Steel Company and the Bethlehem Steel Company, while it is expected some tonnage will be given the Cambria Steel Company. The Chesapeake & Ohio order for 10,000 tons has been finally placed, and announcement is made of a 7000-ton contract by the Boston & Maine, which the Lackawanna Steel Company booked some time ago.

Structural Material.—The amount of business figured on in recent weeks indicates a very considerable improvement in the Structural situation, and some of the fabricating shops have recently increased working time and forces. One feature of current inquiry is that manufacturers are figuring on additions, something that the market has been a stranger to for a good many months. While there are no large projects of this character, the aggregate of a number of modest ones is significant. It is also evident that not as many fabricating companies are willing to quote extremely low prices as figured in the sharply competitive estimates of a short time back. Yet enough slashing is done to make it certain that in one way or another 1.60c. Steel is not the basis on which all bidders are figuring. In July the largest amount of business estimated on in any month this year came before the fabricators—a total of about 105,000 tons, apart from a considerable aggregate of local work of a sort that

never comes to the attention of the larger companies. Of this total about 30,000 tons will not go any farther. It may not be dead, but to all intents and purposes it is so, for the present, at least. Of about 60,000 tons let in July, the American Bridge Company took about 19,000 tons. The mills have found specifications increasing of late, and the outlook is regarded as more encouraging than at any time this year. In the past week the Seaboard Air Line placed 2250 tons with the Virginia Bridge & Iron Company; the New York Central placed 700 tons with the Jones & Laughlin Steel Company, and the Pennsylvania Lines, West, contracted for 500 tons of bridge work with the Fort Pitt Bridge Company. In New York City some good-sized jobs are coming up. For the Hoyt Estate apartment house, between Eighty-fifth and Eighty-sixth streets and Broadway and Amsterdam avenue, about 7000 tons will be needed; for the Emigrant Savings Bank, on Chambers street, 5000 to 6000 tons, and a large tonnage for the 22-story office building on the Everett House site, at Seventeenth street and Union Square. There is also a project of some size which the U. S. Realty & Improvement Company has under way, on Wall street, while at 11 and 13 Cliff street the Golden Hill Corporation will put up a loft and office building, requiring about 350 tons. The project for a 38-story building, at 44-50 Broadway, on a site of which a portion is now occupied by the Tower Building, the first Steel building in New York, is not far enough advanced to be considered alive. As a preliminary step a permit has been taken out, and the Steel for such a building as is talked of would amount to about 4500 tons. We continue to quote on mill shipments of plain material, tidewater delivery, as follows: Beams, Channels, Angles and Zees, 1.76c.; Tees, 1.81c. On Beams, 18 to 24 in., and Angles over 6 in., the extra is 0.10c. From store Structural Material is sold at about 2¼c.

Bars.—Manufacturers of Bar Iron report a continued improvement in the demand, although the volume of business is not yet sufficient to enable the leading mills to operate much more than half their capacity. Prices are fairly strong, being influenced by the firmness of Old Material. While some inferior qualities of Bar Iron may still be had at 1.36c. to 1.41c., tidewater, the manufacturers of Best Refined Iron are usually naming 1.46c. and upward, according to quality and brand. Manufacturers are even more cautious than they have been in making quotations on inquiries for long time deliveries. Steel Bars are held at 1.56c., tidewater.

Plates.—Plate manufacturers are deeply interested in the outcome of the bids on about 16 miles of 72-in. Steel Pipe for the extension of the Brooklyn water system, which were opened last Friday. The bids were so varied in character that careful comparison has been necessary, and the award has not yet been made. In some cases the bids were made on ¾-in. Plates, and in others on 7-16 in., while some manufacturers bid on riveted Pipe and others on Pipe of the lock-bar type. The bids were as follows, per foot of Pipe, for furnishing, delivering, and laying: T. A. Gillespie Company, or East Jersey Pipe Company, \$19.90 for lock-bar and \$21.75 for riveted; Ryan Parker Construction Company, \$20; Cooper, Evans, Brice & Co., \$20.75; James H. Holmes, \$21.75; James J. Hart Company, \$22.90; S. K. Stanley Company, \$23; Henry B. Reid, \$24.85. It is stated that if 7-16 in. Plate is used in connection with the lock-bar type of Pipe this will reduce the quantity of Plates required to between 16,000 and 17,000 tons. It will of course not be known who will furnish the Plates until the contract has been awarded to one of the Pipe manufacturers named. The general demand for Plates continues quiet, current orders calling for rather small lots. Standard sized Plates are quoted as follows, at tidewater: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Old Material.—A tendency is observed among rolling mill manufacturers to take a little more material, but the demand in this direction is not sufficient to cause any change in prices. Some movement has occurred in Heavy Melting Steel Scrap, but principally among dealers. The foundries are buying rather sparingly. A little better demand, however, is observed in Old Car Wheels, on which prices are slightly higher. We quote as follows per gross ton, New York and vicinity:

Old Girder and T Rails for melting.....	\$11.00 to \$11.50
Heavy Melting Steel Scrap.....	11.00 to 11.50
Old Steel Rails, rerolling lengths.....	12.50 to 13.50
Relaying Rails.....	21.00 to 22.00
Old Iron Rails.....	15.00 to 15.50
Standard Hammered Iron Car Axles.....	16.50 to 17.00
Old Steel Car Axles.....	15.00 to 15.50
No. 1 Railroad Wrought.....	14.00 to 14.50
Iron Track Scrap.....	10.00 to 10.50
No. 1 Yard Wrought, long.....	12.50 to 13.00
No. 1 Yard Wrought, short.....	11.00 to 11.50
Light Iron.....	6.00 to 6.50
Cast Borings.....	6.00 to 6.50
Wrought Turnings.....	7.00 to 7.50
Wrought Pipe.....	10.00 to 10.50
Old Car Wheels.....	14.00 to 14.50
No. 1 Heavy Cast, broken up.....	13.00 to 14.00
Stove Plate.....	10.50 to 11.00
Locomotive Grate Bars.....	11.00 to 11.50
Malleable Cast.....	12.50 to 13.00

Iron and Industrial Stocks.

NEW YORK, August 5, 1908.

No untoward development menaced the strength of the stock market in the past week. On the other hand, favorable reports were circulated regarding the gradual improvement in business, and the financial statement of the United States Steel Corporation was better than had been expected, while increasing strength in the price of copper caused a decidedly upward movement in copper stocks. The good statement of the United States Steel Corporation is largely accountable for the advance in the preferred stock, which is now selling close to its record price. The range of prices on active iron and steel stocks from Thursday of last week to Tuesday of the present week was as follows: United States Steel common $44\frac{1}{2}$ to $46\frac{1}{2}$, preferred $108\frac{1}{2}$ to $111\frac{1}{2}$; Car and Foundry common 39 to $40\frac{1}{4}$, preferred $102\frac{3}{8}$; Locomotive common $53\frac{3}{4}$ to $57\frac{3}{4}$, preferred 107 to 109; Bethlehem Steel common $19\frac{1}{2}$ to 21, preferred 50 to 51; Steel Foundries preferred 43; Cambria Steel 36 to $36\frac{7}{8}$ ex div.; Colorado Fuel $31\frac{3}{4}$ to $33\frac{3}{8}$; Crucible Steel common 6 to $6\frac{1}{4}$, preferred $44\frac{3}{4}$ to $47\frac{3}{4}$; Pressed Steel common 32 to 34, preferred $92\frac{1}{2}$ to 97; Railway Spring common $44\frac{1}{2}$ to $45\frac{1}{2}$; Republic common $20\frac{3}{4}$ to $21\frac{3}{8}$, preferred $73\frac{3}{8}$ to $74\frac{3}{4}$; Sloss-Sheffield common $61\frac{1}{4}$ to 63, preferred 100 to $100\frac{1}{4}$; Cast Iron Pipe common $24\frac{3}{4}$ to 26, preferred $72\frac{3}{4}$ to 73; Can common $5\frac{5}{8}$ to $5\frac{7}{8}$, preferred 56 to 61. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common $46\frac{1}{4}$, preferred 111 $\frac{3}{8}$; Car & Foundry common $40\frac{3}{8}$, preferred $102\frac{3}{8}$; Locomotive common $56\frac{1}{4}$, ex-dividend, preferred 109; Colorado Fuel $33\frac{3}{4}$; Pressed Steel common 34, preferred $96\frac{1}{4}$, ex-dividend; Railway Spring common $46\frac{1}{4}$; Republic common $21\frac{1}{2}$, preferred $75\frac{3}{8}$; Sloss-Sheffield common $63\frac{1}{2}$; Cast Iron Pipe common $26\frac{3}{4}$, preferred $72\frac{3}{4}$; Can common $5\frac{3}{4}$, preferred 60 $\frac{3}{4}$.

The Pittsburgh Coal Company has deposited \$194,647 with the Union Trust Company of Pittsburgh as trustee, on account of the purchase of 50,000 shares of Monongahela River Consolidated Coal & Coke Company preferred stock, which was bought in 1903. This is the tenth semiannual installment, and amounts to \$3.89 a share, making \$33.54 per share paid, and leaving \$11.46 a share to be paid in subsequent installments.

In accordance with the statement recently made by the president of the United States Cast Iron Pipe & Foundry Company, a suit has been brought in the Court of Chancery, Newark, N. J., to determine whether the company can pay a preferred stock dividend out of its surplus. The suit has been brought by a holder of common stock.

Dividends.—The American Radiator Company has declared the regular quarterly dividend of $1\frac{3}{4}$ per cent. on the preferred stock, payable August 15, and 1 per cent. on the common stock, payable September 30.

The Electric Properties Company, a Westinghouse interest, has declared a quarterly dividend of $11\frac{1}{2}$ per cent. on the preferred stock, payable August 10.

South and Central American Notes.

SAN JOSE, C. A., July 1, 1908.

The railroad to Bolivia from Jajuy and Salta (Argentina) has been opened to the public as far as La Quiaca. The governors of the different states and representatives of the presidents of Bolivia and Argentina were present at the formal opening. A great deal of business is expected from the junction of this line to the Transandine of Chile and Argentina.

The new Palace of Justice at Buenos Aires will cost over \$4,500,000. Most of the framework will be steel.

All effects of the recent earthquake are rapidly disappearing both at Valparaiso and Santiago. Iron and steel are being used everywhere in frames and buildings now, the roofs in many cases being corrugated iron. The old stone wharves and piers at Valparaiso harbor are being rebuilt with steel. The custom house buildings are steel frames with stone filling. Telegraph and telephone wires are being put under ground. For the last few months the port business at Valparaiso has increased by 100,000 tons. Two new lines from Europe, via the Magellan Straits, now touch at this port.

Many Uruguayans are going to Rio Grande, due to the revolutionary condition of Uruguay at present. Exports of cereals from the ports of Paranagua, Rio Grande and Porto Alegre are increasing rapidly, being already 25 per cent. larger than at this period last year. The new German liners are now running to the above mentioned ports and to Rio de Janeiro and Santos.

The chief of the revolutionists in Peru has been captured, and business goes on as usual. Exports of copper and silver bars continue from the Peruvian mines and those of Chonarcillo. Nitrates from the Atacama District are looking up in price; over 5000 men are at work in the district.

Chilian engineers are supervising the new lines in Bolivia. A committee of the London bondholders of the Paraguay railroads has lately been in Asuncion, and after studying the country and its possibilities has approved the new lines connecting with Bolivia, Argentina and Brazil.

Chile and Peru have apparently agreed over the routes of the Bolivian Central Railroad, and work is proceeding briskly. La Paz, Sucre and the Mamoré and Madeira country are to be connected soon by this route with the Pacific. Much of the capital will come from England and some of it from Valparaiso and Santiago. It is reported that the rolling stock will come from the United States.

This railroad in Bolivia will throw open a country in central South America which is half as large as the United States. Mines of copper, gold and silver abound, but have been worked sparingly in many cases, due to want of communication with the coast and foreign lands. Large sections on the Mamoré and Madeira are rubber producing, while coffee, cacao and all tropical fruits are abundant, and the most valuable medicinal plants are found in all the low sections. Several Americans are trying to get contracts from the Bolivian Government for a line Eastward into Brazil and to the coast, possibly to Santos.

Argentina is doing its best to influence the Paraguayan Government to build through from Entre Rios to Asuncion, thus giving a new outlet to the commerce of Paraguay, southern Bolivia and northern Argentina, by way of the Transandean Railroad, which is steadily being pushed through the Andes. For this line a number of bridges have been ordered from the United States.

Porto Alegre, Pelotas and Paranagua are to have steam dredges from America, and several new steel piers are to be built. Just now most of the commerce of this section goes to Germany. A new line of steamers is soon to be put on between Hamburg and Rio Grande.

The port of La Union on the Pacific is to be dredged by an American company; the old modern piers will be replaced by steel and every improvement made for the accommodation of large steamers and freighters. This port would thus be the main commercial highway for southern Salvador, Honduras and the interior of Central America. A large coffee traffic is carried on in this section; also rice, cotton and spices are produced. Much American mining machinery goes to the gold and silver mines, eastward of La Union. The recent disturbances in Nicaragua have not helped business there.

The navigation of the Ulua River by light draft steamers is being agitated in Honduras, and a number of American contractors are consulting the government about this matter. The Ulua drains a practically virgin country, containing valuable forests of precious woods, with grazing lands for hundreds of thousands of cattle. The building of a dozen steel bridges over the Ulua and its branches would be worth millions to this traffic. c.

The Frick Coke Company, Pittsburgh, has placed an order with the Phoenix Iron Works Company for four 150-hp. return tubular boilers, to be installed in its Filbert coal mine in the Connellsville region. The latter concern has also received an order from the Belmont Coal Company, Neff, Ohio, for one 150-hp. return tubular boiler.

The Mesta Machine Company, Pittsburgh, has recently shipped to the Central Iron & Steel Company, Harrisburgh, Pa., a No. 6 cast steel lever shear and has received an order from the Indiana Steel Company for a similar shear of a larger size, which will be built entirely of cast steel and will be operated by a 150-hp. motor.

The Machinery Trade.

NEW YORK, August 5, 1908.

Machinery houses report a slight increase in sales in July over June, but as the latter month was about the duldest of the year with many, the increase is more indicative of a continuation of the spasmodic demand that has prevailed for some time than of a gradual and steady improvement. A few companies state that their sales of July totaled larger than those of any previous month in the year, but these are exceptions, and in most cases the increased demand was for special products. Business has been at such a low level that the increase in sales can in many instances be attributed to the Government orders. While there has been a great deal said about the coming prosperity and an optimistic feeling undoubtedly prevails, actual business varies but little, and according to many in the trade renewed activity will not occur until the railroads and large industrial corporations come into the market more freely. At the present time there are no signs of a large buying movement being started in the near future, and consequently a quiet summer is looked for. In the past week there were possibly a few more small inquiries, but aside from these the developments were not such as to indicate a noticeable improvement.

Efforts that have been made of late on the part of machinery manufacturers to obtain export trade are bringing good results, as it is reported in the trade generally that despite the prevailing lack of domestic demand for equipment export orders continue in a fairly good volume. The European demand is somewhat slow, but there has been an encouraging call for equipment from the Far East, and South American and Central American trade has been buying for railway and electric lighting equipment. The manufacturers in the power machinery line have been greatly benefited by this demand. The demand for equipment for Cuba and the East Indies, particularly in the way of sugar machinery and power equipment, has been good and export men generally are busy with inquiries. The Van Dyck-Churchill Company reports an encouraging export demand, having received several orders of late for machine tools for export.

Heine Safety Boiler Company's New Plant.

The Board of Directors of the Heine Safety Boiler Company, St. Louis, Mo., has decided to proceed with the construction of the new boiler works which it has had in contemplation for some time past, and about which mention has several times been made in these columns. The new buildings will be erected on a tract of about 6½ acres in extent, with a frontage of 770 ft. on the terminal railroad, at a cost of about \$300,000, and as soon as they are completed the present plant, which is located on leased property on Merchant street, will be abandoned. There will be a main building, 140 x 400 ft.; flange shop, 60 x 180 ft., and a power house, 75 x 80 ft., the buildings to be of structural steel, with cinder concrete roofs and brick walls. It is the intention to equip the plant with modern machinery, and there will be required practically a full equipment of boiler shop tools, including traveling and jib cranes, hoists, &c. The machinery will be motor driven, and in addition to the motors, engines and generators, pneumatic and hydraulic tools will form a part of the power house equipment. No list of the required machines has been prepared, and it is not probable that a complete schedule of the machinery requirements will be sent out for bids.

New York houses are figuring on the following tools for equipping an addition to the plant of the Reeves Bros. Company, Alliance, Ohio, manufacturer of cement machinery: One 14 in. by 18 ft. toolroom lathe, toolroom shaper, back geared toolroom press, universal cutter and tool grinder, automatic twist drill grinder, universal tool grinding and shaping machine, No. 3 mandrel press for bench, one 36 to 42 in. radial drill, 42 x 42 in. by 10 ft. heavy duty planer, motor driven; 16 in. by 10 ft. screw cutting lathe, 48 x 52 in. plain heavy duty triple geared lathe, motor driven; 5-ft. boring mill, 32 in. by 10 ft. lathe and a 20 in. by 14 ft. lathe.

The Worth Brothers Company, Coatesville, Pa., is now receiving bids for all the mechanical equipment and materials required for the construction of its proposed new blast furnace, which will have modern equipment throughout. The furnace, which will be constructed under the direction of the company's engineering staff, will be 85 ft. high and will have a daily capacity of 400 to 450 tons of basic pig iron. An ore bridge will also be built. The company expects to begin placing contracts soon for the entire equipment.

Within a short time a considerable amount of machine tool equipment will probably be purchased by the Carolina, Clinchfield & Ohio Railroad, whose headquarters are at

Johnson City, Tenn. This railroad is a reorganization of the South & Western Railroad, and is to erect a modern plant capable of handling the largest motive power and is now preparing plans for the new shops. These will be the principal shops of the road and will be equipped with modern machinery.

The Tamaqua Mfg. Company, Tamaqua, Pa., whose plant was recently destroyed by fire, will erect a new building, 95 x 276 ft. Plans are being perfected which will show the arrangement and kind of machines that will be installed, and as soon as these are completed the company will prepare a list of its mechanical requirements.

H. L. Gilman, consulting engineer, 26 Linden place, Brookline, Mass., who is preparing plans for the erection of a large industrial plant on the water front in South Boston, will probably soon ask bids on considerable equipment, including coal handling apparatus, 2000 hp. of steam boilers for heating, pipe and fittings for steam, gas, water and compressed air; fire, boiler feed and elevator pumps; 1500-ft. steam driven air compressor, 2000 hp. of gas engines, with suction producers, direct connected to alternating current generators, &c. The plant will contain 3,000,000 sq. ft. of floor space to be rented for manufacturing purposes, the tenants to be furnished with electric current for power and light, steam and hot water heat, gas and compressed air, all generated and furnished from one central power plant. There will be 20 or more buildings, all eight stories high, of reinforced concrete construction, the work of construction to extend over five years. In addition to the buildings there is to be a wharf of over 1,000,000 sq. ft. of area located on the deep water channel, having direct rail connection with all railroads in Boston by means of car ferry and lighter systems. The entire plant will cost about \$10,000,000.

Contracts have been awarded by the Coney Island & Brooklyn Railroad Company for the equipment for the large power house being erected at the corner of Smith and Ninth streets, Brooklyn, on which Ford, Bacon & Davis are consulting engineers. The equipment will include two 2000-kw. Curtis turbine engines, three 600-hp. Babcock & Wilcox boilers and an Alberger condenser. The General Electric Company will furnish all the electrical equipment. There is room in the new power house for equipment to develop 1200 additional horsepower.

The State Commission of Lunacy, Albany, N. Y., will receive bids until August 12 for four horizontal tubular boilers for the Hudson River State Hospital at Poughkeepsie, N. Y.

Business Changes.

Jesse L. Law, 459 Van Buren street, Brooklyn, N. Y., who is well known in the machinery trade, having been connected with the New York store of the Niles Tool Works for many years, is now representing the Powell Tool Company, Worcester, Mass., and has completed negotiations with the Niles-Bement-Pond Company, New York, for the sale of the new patent Powell high speed accelerating cut forge type planer through its agencies. This planer is attracting considerable attention in the trade.

Patterson, Gottfried & Hunter, Ltd., New York, dealers in machinery, hardware, tools and supplies, announce their removal to their new building at 211-215 Centre street, extending back to Lafayette street.

Chicago Machinery Market.

CHICAGO, ILL., August 4, 1908.

Movements observed in the machinery market during the week have not developed strength enough in any direction to excite particular comment. In some lines improvement is reported, but such statements are in almost every instance qualified by the explanation that the gains made are slight. Electrical equipment is in relatively better demand than almost any other kind of machinery, and seems to be slowly gaining ground. The sale of small units in gas and gasoline engines has not at any time declined in proportion to motive power equipment of the same and other kinds in large horse powers. Wide and constantly increasing diversity of uses to which such machines are being adapted has been an important factor in sustaining the demand, and their growing popularity as a motive power for farm machinery has likewise been a strong sustaining influence. The quietness in machine tools is unrelieved, dealers having nothing more to report than a moderate run of incidental orders, most of which are for smaller tools. A few fair-sized millers have been sold in the past week, and inquiries are out for several more, which will probably result in early purchases. The general feeling among machine tool dealers seems to be that no radical change in the situation can reasonably be expected for several weeks, but that the beginning of a steady upward trend may be looked for before long, which will gradually raise the market to its normal level of activity.

How long it will take to fully accomplish this result, is, of course, a matter of conjecture, but it will surely follow a general resumption of industrial activity which must of necessity precede it.

As a result of inducements offered by the citizens of Springfield, Ill., Fetzer & Co., Middletown, Ohio, builders of farm machinery, have decided to move their business to that city, where a new implement factory will be built for its accommodation. In addition to a factory site a cash donation of \$15,000 is being raised by the Springfield Business Men's Association and Chamber of Commerce for the furtherance of this project. The new plant will require a considerable amount of new machinery equipment, including the following items, for which the company is now in the market: Five-ton crane, with controlling pendant; air compressor, 8 x 8 in. double cylinder; molding machines; squeezers; wheel machine for making steel wheels; chipping hammer; rattlers with exhaust; cupola, 10 to 12 ton; cupola fan; grinding stands; bull dozer; punches; shear, shapers; blacksmith forges; blacksmith fan; power hammers; metal planer; lathes; drill presses; wood planers; wood drill machine; sticker; shaving fan; wood wheel machine; sander; tannon machine, and full equipment of factory motors.

The Huntington Brewing Company, Huntington, Ind., is interested in the organization of a company with a capital of \$10,000 for the manufacture of wire fence, and would be pleased to receive correspondence from the manufacturers of wire fence machines. H. W. Hoch is secretary and treasurer.

Very little new construction or improvements involving considerable equipment in electric traction lines has been coming up in the past 12 months within which period activities have been restricted to the actual necessities of maintenance. It is encouraging therefore to note that occasional projects of this character are beginning to develop as a direct result of easier financial conditions. An instance of this kind is noted in the proposed construction of 14 miles of road by the Southern Traction Company of Illinois, which will extend from East St. Louis to Belleville, Ill. For the overhead construction of this line both the bracket and wire span will be used. The initial machinery equipment of the power station will include three 366 hp. water tube boilers, two 500 kw., 6600 volt, 25 cycle turbo generators; and 500 kw. rotary converter; besides which there will be one 500 kw. rotary installed in the substation. No contracts have as yet been let for construction, but the right of way has been secured and some track laid in the city of Belleville and East St. Louis. Harpter Bros., engineers, 21 North Main street, East St. Louis, Ill., are the engineers in charge of this work.

The Lost River Light & Power Company advises that a power plant using the water of Cedar Creek, near Mackay, Idaho, will be built, and will furnish power and light to the town of Mackay and large copper mines in that vicinity. A transmission line of 11,500 volts to carry power 10 miles will be built, and arrangements are being made to extend the line and raise the voltage to 23,000 volts a little later on. The equipment of the plant will consist of two sets of high speed turbines and direct connected generators under a head of 245 ft., and a pipe line 700 ft. long will be laid. R. L. Rockwell, Ontario, Oregon, manager and superintendent, has charge of the design and construction of the system, and Hon. W. J. McConnell, Boise, Idaho, is president.

The question of re-equipping the municipal electric light plant of Logansport, Ind., is now up for consideration, and specifications for the new machinery required are being prepared by Prof. Esterline of Purdue University. The necessary equipment will be purchased as soon as appropriations are made for this purpose by the City Council and Board of Public Works.

The Tipton Light & Heating Company, Tipton, Iowa, operating a three-wire, direct current, 110 volt system, is in the market for a new unit of from 100 kw. to 120 kw. The company contemplates the installation of a direct connected unit, but generators belted direct will also be considered. The company will also purchase several thousand feet of copper wire.

The Washington Water, Light & Power Company, Washington, Ind., recently incorporated, purchased the water plant in that city at a receiver's sale. The new company intends to install a new 1,500,000 gal. centrifugal pump direct connected to steam engine; 20 fire hydrants, and lay 2 miles of new mains. The officers of the company are James P. Goodrich, president; Henry C. Starr, vice-president; E. H. Cates, treasurer; Carl R. Semans, secretary; J. T. Moorman, assistant secretary and treasurer. The company states it will not embark in the light and heating business for the present.

W. B. Krause, city clerk of Port Washington, Wis., will receive bids until August 25 for three 100 hp. water tube boilers, one 100 hp. and one 200 hp. tandem compound condensing Corliss engines, one 75 kw. and one 150 kw. three-phase, 60-cycle, 2300-volt generators, three panel switch board, 60 hp. induction motor, feed water pump, heaters, condensers and other accessories, also for the construction of an addition to the power house and the building of a stack.

Philadelphia Machinery Market.

PHILADELPHIA, Pa., August 4, 1908.

The month of July, usually a dull one, was in some respects better than had been expected. There was no marked general improvement in the demand for machine tools, but there was enough new business to lend considerable encouragement to the trade regarding the future. While the railroads and the larger industrial plants have shown no inclination to come into the market, there have been some few orders for emergency tools from these sources, but before they can become active buyers of equipment it will be necessary for these important factors in the trade to get at least a part of their large percentage of idle equipment and machine tools into service. Not until they do so, can we expect them to enter the market very freely. The bulk of the business placed recently has come from the smaller buyers. Minor plants for the manufacture of specialties, which have been established in a small way, have been the chief buyers, taking mostly equipment of the smaller size. Occasionally an order running into a few thousand dollars has developed, but they were scarce, and when received aided materially in the sale totals for the month. While the volume of business has been far below the average, the trade still expresses most optimistic opinions regarding the future. The immediate business in sight, however, is not large. Inquiries are not so numerous or large individually as might be desired, but there are some few good propositions in the way of equipment for steel casting plants and proposed shop extensions before the trade, some of which are expected to close during the present month. The trade will be pretty well satisfied if the small moderate gain which has been generally noticeable in the machinery as well as the iron and steel trade can be maintained until the coming election, after which, it is expected, there will be a more general forward movement toward permanent better conditions.

Manufacturers report irregular business the past week. In a number of cases gains have been made, but the improvement has not yet enabled many plants to extend their productive capacities far beyond the 50 per cent. mark, and in the majority of cases, particularly in the larger size establishments, that percentage has not yet been reached, and if it has it has been seldom maintained for any length of time. The small plants have as a rule been more successful in this respect and they have been able pretty generally to maintain a higher percentage of activity.

Sales during the week have again been rather irregular. Here and there a sale of moderate size was reported, but the larger portion of the current business has been made up of the smaller tools, with some fair business in the way of special equipment.

The export trade has been rather quiet. There have been few inquiries of importance, and but little business has been taken in this territory. Manufacturers transacting a regular export trade in power transmission and other specialties report orders to have been fewer and materially smaller in volume.

The business transacted in second-hand machine tools aggregates a fair total. Under existing conditions, much of the trade which would naturally go to the manufacturer and dealer in new tools drifts to the second-hand field, where tools suitable for the work contemplated can frequently be found at a lower cost. Sales are largely of an individual character, but cover the usual range of the medium and smaller metal and woodworking tools. Second-hand boilers and engines have been in fair demand only, as has also new equipment of this class.

The iron and steel casting plants have not been actively engaged. Some new business has been taken, but not sufficient to warrant any steady increased production at plants. This trade, on the whole, is dull, and will no doubt so continue until more activity is shown in railroad, machinery and general business circles.

The Belleville & Reedsville Railroad Company was incorporated recently to construct and operate a trolley road, 10 miles long, between the towns named, which are located in Midlin County. The capital of the company is \$100,000, and the officers are: President, L. M. Yoder, Belleville, Pa.; vice-president, S. M. Patterson, Avondale, Pa.; treasurer, F. W. Warner, Belleville, Pa.

The city of Brunswick, Md., has, it is understood, awarded a contract to the Specialty Construction Company, Norfolk, Va., for the construction of water works, including the laying of mains, erection of fire plugs, boring artesian well, and furnishing engine, pumps, tanks, &c.

The Tabor Mfg. Company, manufacturer of molding machines, &c., reports the volume of new business in the month of July as better than any previous month this year. Molding machines of the hinge type have been in better demand, while there have also been fair sales of power turn-over machines and squeezers. A moderate demand is also reported for Taylor-Newbold saw blades. While the business

coming in has not enabled the company to run its plant over 50 per cent. of its capacity, it is much encouraged regarding future business.

The city of Scranton, Pa., has provided for an issue of bonds to the amount of \$100,000, the funds to be used for the construction of a garbage disposal plant, for which bids were opened by the Board of Public Works the past week.

Bids will be received until August 13 by W. F. Shay, president, or Dr. B. Meredith, superintendent, of the State Hospital for the Insane, at Danville, Pa., for additions to the building and the mechanical filter plant.

Cincinnati Machinery Market.

CINCINNATI, OHIO, August 4, 1908.

Conditions in the Ohio and Miami Valley machinery manufacturing sections show a marked improvement in tone of inquiry, taking a broad view of the market, while still indicating a regrettable backwardness in the shop labor and foundry departments. Tool manufacturers have not as yet felt any really encouraging signs, such as would lead them to put on men in numbers and increase running time of departments; such orders as have come out being usually for single tools, such as they could easily and quickly fill from stock. A number of manufacturers in this locality feel that dealers will furnish the real key to the situation, as the condition of their stock floors and order books, in a great measure, governs the character and size of the factory output. The correspondence with dealers, therefore, is being carefully weighed just now, and careful note taken of the sellers' impressions of crop conditions, collections, &c. A large local manufacturer of a standard tool, one of the largest specialists in the world in this line, notes the first (to him) legitimate and encouraging evidences of the railroads' intention to buy. The correspondence of the past week was, in the main, promising, and with the larger concerns the volume of inquiries and actual business for July was better than June; 20 per cent. better in the opinion of a large local tool interest. With the smaller manufacturers, however, July was not any better than June, and with some not so good; really being the lightest business month of the year so far.

In the line of bakers' machinery, sheet metal working machinery, electrical power machinery and the like, business has steadily improved; each month showing up better than its predecessor. One of the largest manufacturers of bakers' machinery in the country sums up the situation thus: "July was better than June; June was better than May. Our business is very fair; we feel that the tide has turned, and although business at the present time is from 15 to 20 per cent. less than it was this time last year, we feel that it is not so far out of line compared with that of normal times."

Local machinery manufacturers are pleased to learn that the old plan permitting consolidation of carload shipments is to be restored. For about a year manufacturers of machinery have been seriously hampered when loading less than car lots to other than Pacific Coast points, and are accordingly pleased to learn that the old custom is to be restored, power of attorney from consignee being, it is understood, the only stipulation required in availing themselves of the concession. Formal notice from railroad headquarters is expected this week.

The Cincinnati Car Company, builder of traction cars, has experienced something in the nature of a boom within the past few days, a three days' period showing up more satisfactory entries for the order book than the preceding three weeks. Among orders received by this company for equipment very recently are noted the Oneonta & Mohawk Valley Traction Company of New York State; Marion, Bluffton & Eastern Company of Indiana, West Pennsylvania Railway Company of Pennsylvania, and Capital Traction Company of Washington, D. C.

Engineering concerns report a gradual improvement in inquiry and a more satisfactory tone to correspondence involving preparation of plans for large enterprises in which machinery specifications will figure.

Among late incorporations in which machinery men are taking some interest is the Borings-Briquetting Company, which has organized by electing Charles G. Alton, a chemist and former Pittsburgh man, as president; J. C. Long, vice-president; G. Sheldon Browne, treasurer, and E. A. Schwab, secretary. These, with Harry Raine as general manager, complete the board and are owners of all the \$30,000 stock. The company will manufacture a chemical which is to be used in coagulating the borings and fine powder which has hitherto been allowed to waste in the foundries. The press to be manufactured by the company and sold to concerns melting iron, molds the collected matter into bricks in handy form to be used again. A demonstration is scheduled for the coming week in one of the large Mill Creek Valley manufacturing plants, to which superintendents and managers of concerns all over the country are to be invited. These are called tests, and are to be made in various parts of the country.

The Rauh Mfg. Company has incorporated with \$10,000 capital stock and will manufacture oil burners. It has taken over the business heretofore conducted by H. Rauh. The incorporators are: H. Rauh, R. A. Le Blond, C. O'Hearn, A. S. Bowling and E. Hoffman.

The Wessling Brothers Foundry Company has been incorporated with a capital of \$30,000 to reopen the Weber Foundry, which was closed under proceedings in bankruptcy for some time. The Wesslings recently purchased the plant, and will arrange immediately to put the foundry in shape for conducting a general foundry business. Additional capital and influence which should prove very valuable to the new company is assured in the presence in the board of President Charles Kruse and Treasurer George W. Kleinschmidt of the Kruse Hardware Company of Cincinnati. Such portion of the company's supplies as can be will be supplied from the foundry.

Conditions at the various large plants in the Lima, Ohio, district are improving steadily. The Lima Locomotive & Machine Company continues to add men, and it is said may reach its normal running capacity by the middle or last of the current month. Relatively improved also are conditions at the nearby plant of the Ohio Steel Foundry Company, which manufactures all the steel castings used by the locomotive concern, and which resumed operations August 1.

The new furnace at Hamilton, Ohio, of the Hamilton Iron & Steel Company is expected to go into blast on or before August 15. The officers of this company elected at the last meeting of stockholders are as follows: President, George L. Pearson; vice-president, Edwin N. Ohl; secretary-treasurer, Reamy E. Field of the Field & Longstreth Company, Cincinnati. Directors: William R. Todd, Frank F. Dinsmore, N. S. Keith, and O. V. Parrish.

The elevator of the American Sheet & Tin Plate Company's plant, at Wellsville, Ohio, was partially destroyed by fire a few days ago.

A new electric power plant will be erected on the site of the old Franklin paper mill, at Hamilton, Ohio, by the Hamilton Hydraulic Company, under the direction of T. A. Jones, superintendent of the Harding Paper Mill of Excello, Ohio.

Reports from Toledo, Ohio, indicate a satisfactory improvement in conditions at most machinery manufacturing concerns there. The Toledo Machine & Tool Company recently shipped two carloads of punch presses and drop hammers to a central Ohio city and a carload of drop hammers to Philadelphia. An order from a Massachusetts concern manufacturing automobile parts calls for a punch press weighing 110,000 lb.; another weighing about 90,000 lb. goes to a New York concern making steel burial caskets. The company has reached about 80 per cent. of its normal output.

Work is expected to begin within a few days on the plant of the Continuous Water Power Machine Company at Alexandria, Ind. The former site of the Kelley Axe Company, now located in Charleston, W. Va., is to be used, and new buildings with proper equipment to cost approximately \$50,000 are to be erected. The plant is to be in operation with not fewer than 100 employees on March 1, 1909, and a year later is to have not fewer than 500 men at work.

Orders recently issued at the plant of the Ohio Elevator & Machine Company, at Columbus, Ohio, place the working force on a 10-hr. per day schedule, and it is expected to increase the pay roll in a short time. Business is reported to be increasing, and quite satisfactory.

The American Rolling Mill Company started its Zanesville plant at midnight July 26, with a force of 200 men, working in eight-hour shifts. Nearly 100 more were put on last week, and it is expected that additions will be made gradually, until by fall the normal force will be employed. The plant has been closed with the exception of a week in May, since last November.

Plans have been prepared for new shops for the Northern Ohio Railroad Company, a division of the New York Central Railroad, at Delphos, Ohio.

The Marion Gray Iron Foundry Company, Marion, Ind., has secured the old plant of the Ward Fence Company in that city and will remodel it and install machinery necessary for enlarging its operations.

The brief strike of employees at the plant of the Newport Rolling Mill Company at Newport, Ky., was satisfactorily settled, after a two days' shutdown, on Friday, July 31, and on Monday, August 3, the 10 finishing mills were all started, anticipating a steady run till the holidays. Concessions were made by both the Amalgamated Association and the Andrews people. The company agreed to abandon its demand for the discharge of the men who originated the trouble, and the association officials agreed to the making up of the payrolls the same as at other mills at Middletown, Ashland, and Wheeling, W. Va.—namely, two weeks' pay will be held back at a time and payment made accordingly. The mill is to continue running in event of any further disagreement, pending settlement by an arbitration board. It is stated that eight modern annealing ovens will be built in place of the old puddling and bar mills abandoned since the company has been making its own steel.

The Droegees, who founded the business many years ago of the Licking Rolling Mill Company in Covington, Ky.,

have finally triumphed in the litigation which has been on for over a year over stock control of the property. John Droege, Fred Droege, and William Droege have acquired a quitclaim to the property for \$25,000, and expect to have the mill running by the middle of August, with a force of 300 men.

Cleveland Machinery Market.

CLEVELAND, OHIO, August 4, 1908.

The volume of orders taken by the local machine tool dealers during the past week showed no particular change as compared with the previous week. In fact, the condition of the market has remained about stationary since the beginning of summer, and dealers report that their July sales were about the same as those of June. Although there is no improvement in actual sales dealers report a slight improvement in inquiries, and the general feeling and outlook is somewhat better. Sales are limited mostly to single tools in small sizes, and few of the new inquiries are for more than one or two tools. The automobile makers are still buying some machine tools for the purpose of improving their plants, and in some cases adding to their capacity, preparatory to commencing work on their next season's output. Outside of the automobile plants the demand is largely from comparatively new industrial concerns that started business in a small way and are now adding to their equipment. Some orders for single tools are also being placed by large manufacturing concerns that are overhauling their plants. Now that the general outlook has improved a somewhat better demand is expected from this source.

There is a fair demand for second-hand tools, but the supply is somewhat limited and some of the dealers have very few in stock.

Tool builders report the volume of business still light, but some notice an improvement in inquiries. There is a better demand for special tools than for the standard tools. In heavy machinery an improvement is noted both in the volume of orders and inquiries. This is particularly true of cranes. For some time past there has been a limited volume of orders for small single cranes, but now a number of larger inquiries have developed, each for several cranes. Orders for locomotive cranes also show some improvement. An encouraging sign is the fact that builders of heavy machinery have received instructions to go ahead with some orders that have been held up for several months. An improvement is noted in the demand for air compressors and for pneumatic pumps from small municipalities that are installing water works systems.

The Interstate Engineering Company, Cleveland, reports a satisfactory improvement in the volume of its orders during July as compared with the preceding months. The company has recently secured contracts for the structural steel work for the new Hughes High School in Cincinnati, Grand avenue viaduct in Milwaukee, Wis., and for an addition to the silk ribbon mill of Kaltebach & Stephens, East Allentown, Pa. The company has recently completed the erection of a cast house, engine and boiler house and hoist tower for the plant of the Hamilton Iron & Steel Company, Hamilton, Ohio. The company reports the outlook good for a further increase in its business.

The Canton Mfg. Company, sheet metal worker, Canton, Ohio, reports its business very good. The company has so many orders on hand that it is necessary to keep the plant running three nights a week, and it has enough work to keep the plant running every night if the men could stand the night work during the hot weather.

Sealed proposals will be received by the secretary of the Board of Public Service, Cleveland, until August 11, for a compound engine directly connected to a 35-kw. generator, to furnish excitation to two generators at the Cleveland municipal electric lighting plant.

The Board of Service of Newton Falls, Ohio, will receive bids until August 10 for a steel water tower and tank having a capacity of 60,000 gal. Copies of the plans and specifications can be secured from the Town Clerk or from the Reliance Engineering Company, Cincinnati.

The Niles Board of Trade has succeeded in raising the \$3000 bonus needed to secure the plant of the Youngstown Furnace & Supply Company. It is the intention to locate it in the former plant of the Niles Mine & Mill Supply Company.

Owing to an increase in the volume of orders the Warren City Boiler Works has been able to put on a larger force and increase the working hours in the plant.

The Davis Clutch Company, which recently established a plant in Cleveland, reports that orders are coming in in a satisfactory manner. The company, which began business in a small way, expects to be in the market soon for some additional machine tool equipment.

Government Purchases.

WASHINGTON, D. C., August 4, 1908.

The Isthmian Canal Commission will receive bids until August 31, Circular No. 460, for railroads with grip cars, electric railroads with motor cars, traveling cranes, and other supplies.

The Isthmian Canal Commission will receive bids until August 24, Circular No. 450, for rock drills, &c.

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until August 15 for four boilers with stokers, super-heaters and stack for the Philadelphia Navy Yard.

The following bids were opened July 28 for supplies for the navy yards:

Class 11.—One motor driven rotary blower—Bidder 29, Brewster Engineering Company, Hoboken, N. J., \$898.40 and \$686; 198, P. H. & F. M. Roots Company, New York, \$541.20; 219, B. F. Sturtevant Company, Hyde Park, Mass., \$1071.

Class 242.—One 4-ton electric hoist—Bidder 20, Bigelow & Dowse Company, Boston, Mass., \$400; 91, Hoisting Machinery Company, New York, \$396; 222, Shepard Electric Crane & Hoist Company, Montour Falls, N. Y., \$370.50; 252, Yale & Towne Mfg. Company, New York, \$388.

Class 335.—One mast crane—Bidder 97, Hilles & Jones Company, Wilmington, Del., \$145.

The following awards have been made for machinery for the Isthmian Canal Commission, bids from which were opened June 8, Circular No. 442:

Fox Bros. & Co., New York, class 2, one universal radial drill, \$1559.

William Sellers & Co., Philadelphia, Pa., class 3, one slotter, \$1535.

Drew Machinery Agency, Manchester, N. H., class 4, one staybolt cutter, \$638.

Manning, Maxwell & Moore, New York, class 5, one elevating crank pin and small wheel press, \$437; class 9, one flanging clamp, \$338.

Prentiss Tool & Supply Company, New York, class 6, one power hack saw, \$17.25.

Vandeyck-Churchill Company, New York, class 7, one cold saw, \$935.

The following awards have been made for supplies for the navy yards, bids for which were opened July 14:

General Electric Company, Schenectady, N. Y., class 71, 145 electric motors, \$19,146.

Prentiss Tool & Supply Company, New York, class 81, one heavy double engine lathe, \$11,975.

Austrian Convicts as Farm Laborers.

United States Consul Charles B. Harris reports to the Department of Commerce and Labor from Reichenburg that, owing to the scarcity of farm laborers in that part of Austria, the civil authorities are experimentally hiring out to farmers convicts for work in the fields. He says:

The experiment is said to be proving successful, especially to the farmers. The selection of the convicts for such work is made from the most orderly and well behaved and from among those who it is thought will not attempt to escape. The prisoners so far employed are much pleased with the work, and their employment is an incentive to others to behave well in the prison that they also may be taken to the fields. The work by the convicts is willingly and well done, and as much labor is performed by them as is done by the regular farm employees, if not more. The prisoners are taken every morning to the field, carrying with them their food, except a small lunch consisting of bread and butter which is furnished by the farmer. The farmer pays the State 1 crown and 40 hellers per day, equal to 28 cents United States currency. Of this sum 30 hellers, or 6 cents, are credited to the account of the prisoner and paid to him upon his discharge from imprisonment. It is stated that there is no objection among the labor and trade guilds or the people to the employment of convicts in the fields as agricultural laborers.

The Bantam Anti-Friction Company, Bantam, Conn., has issued the Bantam *Anti-Friction Booster* for the purpose of advertising its specialties in the line of ball and roller bearings of all types. The publication is a four-page folder in imitation of a country daily paper. The inside pages constitute the advertising section and the outside pages are used for editorials, news items of local happenings and select miscellany. The reading contents are exceedingly bright, and even the most hurried reader will be sure to be attracted by something which will excite his interest and his risibles. The advertising section is deeply serious, and the company states that the information given on these pages consists of reliable facts duly sworn to by the officials.

HARDWARE

THE falling off in business, whatever may be said on the other side, has certainly put the employers of labor, and especially of skilled labor, in a comparatively comfortable position. A year or two ago it was difficult in many lines to get competent workmen and to retain them if secured, while there was at the same time a general tendency on their part to shirk their responsibilities and slight their duties. The large demand for their services developed also a restlessness among the men that kept them moving from place to place, so that not a little was done to break up the old and very desirable permanence in the relations between employers and their men. The condition of things is illustrated in the remark of a prominent manufacturer that every morning there would be from 25 to 50 men looking for a place, but that if five of them were employed three would probably be gone before noon and the fourth at the end of the week. Many a manufacturer will be ready to testify that such an experience was usual rather than exceptional. It illustrates the unfortunate tendency which prevailed in the days of exceptional pressure on business.

It is now quite different. Employees are under present conditions more anxious to please and are taking an interest in their work. The force in nearly all factories has been reduced, and this has naturally been by laying off the least efficient workmen. This reduction of force has the double effect of making those still employed anxious to retain their places, and to do this by earning credit for good service. It must be admitted that this condition of affairs has of late been somewhat disturbed by the exaggerated reports in the daily press of improvement in business in various localities. When men who are employed only four or five days in a week read that factories in their line at some other point have been put on full time and with a full force, they naturally assume that something is lacking in the management of the works with which they are connected and feel like looking for a better place. On investigation, however, they may find, as our own inquiries have frequently disclosed, that manufacturers in such cases had been keeping their establishments idle for some time and bunched their orders to make a good run, with the intention of stopping as soon as the work on their books should be turned out. When the stoppage occurs, that fact may not be reported in the daily papers. Hence, those who are cautious enough to inquire carefully before they abandon a position which gives them four or five days' work a week will stay where they are.

The proportionate efficiency of the whole establishment is now increased. The output is as a rule more satisfactory. Mistakes are fewer and the whole plant is easier to handle because the men doing the work are competent. The question of wages, too, has been a comparatively simple one. Advances are not expected. While there have been few reductions, the tendency is rather that way. The men know it. It may or may not be necessary to reduce wages, but in the present juncture those who have work are anxious to keep it. This state of things is not only comfortable for the employers, but unquestionably good for the men, who are not under the demoralizing influences of an excessive demand for their labor. They are better for feeling that they must do their best.

Condition of Trade.

The undercurrent of the correspondence of business houses and the reports of salesmen are interpreted as indicative of substantial improvement and upward tendencies, trade communications reflecting a spirit of greater confidence and better feeling than has manifested itself so far this year. Stocks of goods are unquestionably light everywhere, and warehouses are depleted, so that even moderate trade increases will compel a greater output than so far has been advisable, some taking the ground that later months will find merchants short of goods. The sharp competition of the last six months has evidently caused the smaller dealers to realize on their stocks, causing some to sell at or about cost, and in instances even less than cost. The representatives of some factories having wide connections assert that orders are coming in much better and of a more satisfactory character and for somewhat larger quantities. Railroad buying is alluded to as on a larger scale, and manufacturers are operating their plants more hours than has been the case for several months. Collections are much better. Houses having Southern connections report a better feeling and excellent crops, incidentally mentioning the fact that the saw mills are beginning to get business. Other manufacturing industries call attention to fairly good out of town business, which is coming along slowly but surely, although less is to be said for current local business. One representative company alludes to July business as unusually good in comparison with preceding months, and it looks for a steady improvement this fall, present conditions appearing encouraging not only in the East but in other sections. A conservative, closely managed house finds a decrease in its business for July of only 10 per cent. as against July last year, instead of 39 per cent. for a period of eight months, compared with the corresponding period of the preceding year. Favorable crop conditions are having due weight, and a better business in Mechanics' Tools points to the employment of hitherto idle workmen.

Chicago.

In the sense that business for the month of July may be regarded as having squared with general expectations it has not, either as to volume or trend of developments, proved disappointing. Forces that might be counted on to give substantial impetus to market movements are, as a rule, not aggressively active in the duldest month of the year, and therefore hopes of vigorous reaction from existing conditions in this period were not seriously entertained. At the same time signs of promise concerning the future have been eagerly watched for, and unless they are strangely misunderstood indications enough of a favorable nature have been noted to warrant the conclusion that such vigils have not been in vain. For one thing, it is reflected that each succeeding day of fine growing weather of the kind the country has recently enjoyed adds multiplied wealth to the resources of agricultural communities, which will later on find its way into trade channels. Then, too, it is observed that even in those sections of the market where no distinct improvement is yet apparent a more optimistic feeling prevails, and there is everywhere less disposition to view the situation through blue glasses. But what affords even more encouragement and satisfaction is the fact that in some directions evidences of onward progress are beginning to take the concrete form of a gradually increasing volume of business. This seems to be true of Builders' Hardware. Manufacturers are reporting noticeable improve-

ment, especially in the demand for medium grades of Locks, Butts, Hinges and finishings commonly used in small residences, apartments and other buildings of moderate size. In this connection attention is called to a paragraph of the Chicago Hardware letter in issue of July 23, wherein the market on Hinges was classed along with Machine and Carriage Bolts as an open one. To clear this statement of ambiguity, it should have been explained that it was not meant to convey the idea that bars on prices had been thrown down; but rather that no efforts are now being made by manufacturers to influence the maintenance of a jobber's resale price on Hinges. In the sense, therefore, that each jobber is guided solely by his own judgment in fixing the selling price on these goods the market is an open one; but only in this sense, for with the exception of a few strongly competitive grades and sizes, the line is fairly firm and even. Manufacturers affirm that prices are, if anything, stronger and more uniform than at any time since the depression began. Of the market as a whole, however, nothing new respecting values has developed, although there seems to be less distrust than there was of the present stability of prices in general.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Business continues to improve steadily. All our salesmen are back from their vacations and every man is on his territory. Orders are longer and more "meaty." Merchants are buying with more confidence.

During the summer we have closed 30 min. earlier every day and given a half holiday on Saturday. The pressure of business has compelled us to lengthen our hours and to discontinue Saturday closing. While it has been customary to close early on Saturdays during the summer months, this year is the first time we ever experimented with shortening the hours of the day's work during the dull period. The experiment seems to have proved a success. Our employees appreciated the shorter hours and we do not see where our business suffered.

It seems to us it would be a good idea for jobbing houses to give the question of hours more consideration. We cannot afford to reduce our force during the dull periods. In order to give good service we must preserve our organization intact. We must naturally conclude if a certain fixed force of employees can handle a large volume of business in the busy spring and fall, the same number of people cannot be fully employed during quiet times. Therefore, the problem resolves itself into a question of having a force of employees adjusted to take care of a volume of business in quiet times, making it necessary to do constant night work in busy times, or of adjusting your force to take care of the business comfortably in busy times with shorter hours in quiet times.

We are quite sure all jobbers will agree night work is uneconomical and unprofitable. Good service cannot be got out of a man working steadily in stock or at a desk from 14 to 16 hr. a day. Such work is deadening. What is gained the night before is lost the following day. We believe it is demoralizing to allow employees to waste any time in business hours—we believe in separating work and play—but we do lean strongly towards the idea of shorter hours in the dull times in the summer and the dull times around the holidays.

Probably these remarks may be read by traveling salesmen and they may conclude the shorter hours apply to them. If they do, they are very much mistaken. The work of a traveling salesman is the healthiest in the world. Traveling salesmen as a class—leaving out those who are dissipated—are the healthiest men on earth.

A salesman who desires to succeed cannot work fixed hours. He enjoys many liberties. No man who works for wages is as independent as a successful traveling salesman. Some salesmen, however, seem to forget the advantages they enjoy. A good many salesmen show a disposition to combine all the advantages of a road job with all the advantages of a house job, and attempt to eliminate the disadvantages of both. A salesman in covering his territory enjoys change and variety. The social side is a large part of his work. He has plenty of time to read on the train and even when driving.

On the other hand, house work is a long and steady grind. In these days of large cities and great areas the house employee living in the suburbs must get away from home very early and he returns late.

The writer of this article has worked for many years both in the house and on the road, and when it comes to a question of work his sympathies are almost entirely with the house employee. As a matter of fact, the 10 years he spent as a salesman are looked back upon as a very pleasant and enjoyable experience, but he does not look back in exactly the same way to the days when he was a stock clerk and worked three or four nights a week.

On account of the good crops throughout the larger part of our territory, we confidently expect a very heavy fall business.

Let us all quit talking about either the panic or prosperity. These things are now dead issues that should be stored away in the attic with a well selected lot of reformers—National, State and municipal.

We are told that Cato in the Forum always ended every speech with the same expression: "I am also of the opinion; Carthage must be destroyed." So we will close: "I am also of the opinion the tariff must be revised."

Cleveland.

W. BINGHAM COMPANY.—It is gratifying to note the improvement in business in almost all lines. Railroads are having more freight offered to them and many idle cars are being put in motion. Manufacturing plants are opening up almost all of their departments and putting to work many unemployed men. With the immense crops in sight and better feeling all around it is hoped that there will be no necessity for reduction in wages, and that all will soon be fully employed.

Midsummer vacations are still with us, and many employees and customers are off duty, so that those who remain to look after the business at the old stand in some instances have double duty to perform. However, it is hoped by the middle of August or not later than the first of September that all will have returned to their posts with renewed vigor and help to push along the prosperity for which we are all looking.

General Hardware trade at this time of the year considering the times is very good. Orders are coming in frequently from the country and are larger in size. Orders for future shipment are being placed much more freely, no particular line of goods having its special innings. There is a marked increase in orders for mechanics' Tools and Builders' Hardware over a few months ago.

Prices for the most part are firm, and it is not so much the price of the goods as it is ability to fill orders satisfactorily that merchants want. The better class of trade has no use for salesmen whose sole capital in trade seems to be price cutting on certain articles, expecting to be able to square themselves on others. Weak salesmen's jobs are not a stable article. What the trade wants and demands is fair treatment, moderate prices, quick shipments and as few back orders as possible.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Business in the South for the month of July was far ahead of June, but July has always been much better for volume than June. This year the increase is more noticeable. While July has been a much more satisfactory month than June, at the same time the increase in volume is not quite in keeping with splendid crop prospects throughout our Southern country. People seem to be very cautious and conservative, and prefer to buy late and in small quantities. We cannot doubt but that the fall trade, although late, will be quite satisfactory. The reports which we are receiving from our traveling men, in a measure, confirm the Government reports on crop conditions. If good crops make good trade we can expect to work nights through the coming fall and winter.

Prices seem to be fairly well maintained. Jobbers seem to keep pace with the manufacturers in any changes of prices that they see proper to make. We have a fairly

steady iron market. Nearly all of the Tennessee and Alabama furnaces have a pretty good supply of orders on hand. We notice some increase in the earnings of the railroads. This is very encouraging.

Collections have not been quite up to the standard for the past 30 days, but there ought now to be some improvement in certain sections of the South on account of the wheat, vegetable and fruit crops, which are now being marketed. We believe that conditions will improve as the fall season advances.

Omaha.

LEE - GLASS - ANDRESEN HARDWARE COMPANY.—The month of July closes with trade conditions in the trans-Missouri region healthy and satisfactory. The basis of business in this part of the country is the crop. The small grains just harvested have proved very gratifying as to quantity and quality. The weather continues propitious for the ripening of corn, which is our staple product, and every indication points to a large yield.

Prices of all farm products remain at remunerative values, and with these essential features existing a continuance of flourishing business conditions is assured for an indefinite period.

As far as fluctuations in prices are concerned, the Hardware market is comparatively featureless, and it is expected that values in a general way will remain about where they are for the remainder of the year.

Baltimore.

CARLIN & FULTON.—There was a time when the Hardware trade in common with most other lines, such as dry goods, notions, boots and shoes and clothing, had but two seasons in the year, the spring and the fall, while "between seasons" there was little to do.

While this continues in other lines the Hardware business has changed, and the inventive genius of our manufacturers constantly bringing out some new article, at first perhaps a luxury, but later a necessity, provides something for every month in the year and gives opportunities for endless activity. To be sure some goods are adapted to one season and not to another, but there are no months in the year when there are no goods to be found suited to that particular time.

The passing of July brings us one month nearer to what is termed the fall season, when it is generally expected there is to be a decided improvement in business, and perhaps a volume of trade which, while not equaling the abnormal business of the early fall of 1907, will compare favorably with the preceding four or five years.

The basis for this expected revival of trade is the satisfactory condition of our agricultural sections, and the fact that once again the crops will bring to the producers billions of dollars to be added to the wealth of the country. With but one exception the grain crops of this year have never been surpassed.

The cotton crop will exceed all previous records. The prices have been excellent and the average farmer has never been more independent. These immense crops mean a great deal to the transportation interests of the country. They mean a immense demand for rolling stock and for railroad hands, and those roads which have allowed their physical condition to depreciate in the interest of mistaken economies and for the sake of dividends will find perhaps it had been better to have prepared for the inevitable business which is to come unless all signs fail. The B. & O. Railroad, after declaring an unearned dividend, have shut down their repair shops here, throwing probably 2000 hands out of work, in order to reduce expenses. This is undoubtedly hard upon the working man and has been severely criticised.

The duller sections are the manufacturing and mining sections; but this cannot continue much longer.

According to the statement of the United States Steel Corporation, it has now 72 per cent. of the full capacity of its plants in operation, while three months ago only 45 per cent. were active. This improvement is not confined to any one section or industry, but is undoubtedly gathering headway everywhere, but the forward movement is being made with caution and conservatively.

Goods are not being bought or sold speculatively, but

to meet the absolute requirements of an immense population whose daily needs are great and the fact that the market is not overloaded, that stocks are at a minimum wherever held, that a demand is certain, that the caprices of fashion have no part in the distribution of Hardware, all help to give us reasons for a belief in a good healthy trade the balance of the year.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The market is singularly unresponsive, if we may believe the newspaper reports of large increased trade in sight. It ought to have that brisk character of buying and selling with a certain amount of anxiety of getting in at the bottom, but until buyers are persuaded that it is especially advantageous to buy now rather than later, we hardly expect to see the order books of the mills swollen to uncomfortable proportions.

We do not believe that any of them have had to take those prophylactic pills which are advertised on the billboards for "that full feeling." Things are reasonably low and nobody is expecting a break or serious decline. For whatever there is needed they are willing to pay present prices, but certain it is there is no scrambling to get into the band wagon, or whatever the vehicle is that goes before a boom. We are in the midst of politics and political terms naturally suggest themselves. If we are to believe the crop and other reports we have the three conditions which go to make up active business—namely, easy money, good crops in sight and a depletion of stocks to narrow proportions. It will be very singular if they fail to operate in this one case.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—Harvest is now here. Haying has been in progress for the last two or three weeks and will continue for some time. The hay crop is heavy except in the lowlands and will be of great value.

This has been an exceptionally favorable year for the growth of all the grasses, and meadows as well as pastures have had abundant growth. The Northwest has never appeared to better advantage than it now displays in its livery of trees and grasses in green and its fields of golden grain about ready for the sickle.

Barley and oats are being harvested. The former is a good crop, and if it can be got to the thresher in good shape the returns will be very satisfactory. The oat crop will be only fair. Rust and other causes have helped to reduce it. Still it will be fair.

Wheat, which is the crop that usually creates the most anxiety, as well as expectation, comes in at this time for the usual share. This is no longer "a one crop country," but it is still given up too much to raising wheat; partly for the reason that, as it is now raised here, it is "the lazy man's crop," partly for the reason that it turns quickly into money and partly because the raising of wheat can be carried on in a larger scale with a small amount of hired help than most kinds of farming. Less acreage in wheat and better farming are likely to grow in favor in the Northwest. Just now wheat is in the critical stage, and farmers and merchants are watching with intense interest the weather and the reports from the fields.

The wheat plant has so many enemies and its progress from early spring, when it first puts in an appearance, until the golden grain pours out from the thresher, is beset with so many interferences as to make one wonder that a successful realization ever comes. It is "too much rain" or "too little"; the winds blow hot or sometimes too cold, or it may be rust or something else, but, anyhow, all the while it is one thing or the other from start to finish.

Under present conditions fairly good returns from the small grain crops are essential, not only to the farmer, but also to the yearly balance sheet of the retail and wholesale merchant, and it will be a great relief to all to see a fair crop harvested in the next few weeks.

The present conditions promise a fair crop. Hot weather has hurt certain sections to some extent. There is just now some talk of black rust, but still the conditions are fair. The weather is now very favorable, and

it is probable that the crop will come on satisfactorily. It will not be a "bumper" crop, but it should be about that of last year, and with fair prices, which may be expected, the Northwest hopes to be in good shape at the end of the year.

Trade is fair, also collections, and business interests are very hopeful.

Portland, Oregon.

FAILING-McCALMAN COMPANY.—Business in Portland, and we understand in all the Pacific Coast territory, has been decidedly looking up during the last 30 days. All the local jobbers report a large increase in business this month over any previous month this year, and we are beginning to look forward to a six months equal to the first six months of 1907. Whether these conditions prevail all over the country we are unable to say, but we certainly hope they do. At any rate, the Pacific Northwest is no longer worrying over the result of the election, but has decided that we are going to have prosperity anyway, and is doing its best to make this belief come true. We certainly hope the rest of the country look at it the same way, for if they do nothing can stop us from taking up the course of business where we left it last fall.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade continues fair. When we say this we mean equal to what it has been during the various months from January 1. When we think of the feeling that has existed throughout the country since October last we cannot wonder that trade has not reached to the exceedingly large proportions of the same period in 1906 and 1907.

When persons ask us, as they frequently do, how trade this year compares with the above two years, we answer that we have during the past year more particularly compared our trade with the year 1905, and business has been equal to that year, but, of course, it does not run to the basis of the years 1906 and 1907. Everything, however, points to improvement, although perhaps not until after the Presidential election will

trade be what the country would like to see it, but after that we hope we can look for further improvement.

The conditions of the agricultural products as reported by the Government are certainly generally satisfactory. Factories have largely increased their production and taken back many of their employees, and it has been stated by some of them that the number now out of employment is no greater than the number of foreigners who have arrived in our country during the past two years.

Bank conditions throughout the country are certainly in a generally improved condition, and not only improved but good condition, and money is sufficiently plentiful in the hands of bankers that persons should be able to pay their bills when they become due, because the amount of interest banks are charging now is no greater than it was one year ago, and, of course, fully one-half less than it was four months ago.

We now feel that in the next few months persons in trade should again be able to feel happy and keep their stocks in good condition and pay for them when due, and the producers of all agricultural products in the North, South, East and West continue happy.

NOTES ON PRICES

Wire Nails.—A continued increase in demand, made up, for the most part, of orders for small lots, is an encouraging sign of a larger consumption of Nails. Jobbers are carrying light stocks and are not anticipating their wants, as there are no indications of an immediate advance in price. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$1.95
Carload lots to retail merchants.....	2.00
Less than carloads to jobbers.....	2.00
Less than carloads to retail merchants.....	2.10

New York.—A slightly better demand is noted in the local market, but business continues of moderate propor-

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tions. Nails are held on the basis of \$2.30 per keg in small lots at store.

Chicago.—Conditions have been very favorable in this line and shipments for July have run several thousand tons ahead of last year. Orders are practically all for immediate shipment. Specifications from Texas and Southwestern points for Nails and Barb Wire have been liberal in anticipation of an advance in freight rates, which becomes effective August 10. Quotations are as follows: \$2.13, in car lots to jobbers, and \$2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New business in Wire Nails is showing some increase, but as yet the demand is mostly for small lots for current needs. Most orders being sent in are for prompt shipment, showing that jobbers are carrying very light stocks. The opinion is steadily growing that prices on Wire Nails will not be any lower, but if a change is made it will be an advance. There is nothing to indicate that this will be made at an early date, but at the same time the Wire Nail market is showing steady betterment, both in demand and shipments by the mills. Quotations for base sizes are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$1.95
Carload lots to retail merchants.....	2.00

Galvanized Nails are quoted at \$1 over the price of the regular Nails.

Cut Nails.—Requirements continue moderate as reflected by mill shipments, which are for small lots. The volume of business shows but little increase. Quotations on Steel Nails are on the basis of \$1.80 per keg, at mill, \$1.75 being obtainable on the most desirable business. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

New York.—Requirements continue light in the local market, resulting in a moderate demand. Steel Cut Nails are held on the basis of \$2.15 per keg, for small lots at store.

Chicago.—Sales of Cut Nails have shown a slight improvement in line with general business conditions in the West. Prices are unchanged. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, \$2.08; Steel Cut Nails, \$1.98. In small lots from store: Iron Cut Nails, \$2.25; Steel Cut Nails, \$2.15.

Pittsburgh.—The demand continues to be confined to small lots for current needs, and shipments by the mills are not very heavy. The Cut Nail trade so far this year has been extremely unsatisfactory, but an early demand is looked for with the opening up of fall trade. Quotations on Steel Nails are on the basis of \$1.80 per keg, at mill, \$1.75 being obtainable on the most desirable business. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

Barb Wire.—Mills are shipping on specifications against contracts, and with this exception demand is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.10	\$2.40
Retailers, carload lots.....	2.15	2.45
Retailers, less than carload lots.....	2.25	2.55

Chicago.—There is a little more activity than usual at this season of the year, chiefly owing to the demand from the South and Southwest in anticipation of higher freight rates. Specifications are for immediate shipment. Quotations are as follows: Jobbers, Chicago, car lots, Painted, \$2.28; Galvanized, \$2.58; to retailers, car lots, Painted, \$2.33; Galvanized, \$2.63; retailers, less than car lots, Painted, \$2.45; Galvanized, \$2.75; Staples, bright, in car lots, \$2.25; Galvanized, \$2.25; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—New business is very light, but a fair amount of tonnage is being shipped out by the mills on specifications against contracts. Quotations are as fol-

lows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.10	\$2.40
Retailers, carload lots.....	2.15	2.45
Retailers, less than carload lots.....	2.25	2.55

Plain Wire.—An increased demand is noted in anticipation of a good fall business in goods manufactured from Wire, especially Wire Fencing. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.....	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....	\$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35	
Galvanized.....	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95	

Chicago.—There has been an increase in activity in this line, as the Implement manufacturers are offering specifications more freely for their requirements. The Fence manufacturers are making specifications in moderate volume. We quote as follows: Car lots to jobbers, \$1.98, f.o.b. Chicago, and to retailers, \$2.05.

Pittsburgh.—More orders are being placed and for larger tonnage than for some time. Fence makers are now enlarging their stocks in the expectation of a good fall trade. Prices are firm, and, we are advised, are being rigidly held. Shipments by the mills in July was reported as showing a material increase over June. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of \$1.80 for Plain and \$2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the price to retailers being 5 cents additional:

Nos.....	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....	\$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35	
Galvanized.....	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95	

Copper and Brass Goods.—Bare Copper Wire, for electrical purposes, was advanced August 4 to 14¼ cents, base, per pound, which put it back to where it was previous to July 20. On the latter date it was reduced to 14¼ cents, and on July 31 advanced to 14½ cents per pound, base, mill shipments, f.o.b. Another advance of ¼c. on August 5 makes the current base 15c. On August 1, manufacturers of Brass Goods issued a new price-list, showing changes both ways on some goods.

Window Glass.—The bullish feeling in the Window Glass market is manifested by advancing prices and the possibility of further advances. As stated in these columns last week, the Eastern Jobbers' Window Glass Association made an advance of about 5 per cent. A meeting of the Western jobbers is scheduled for this week at which it is anticipated that an advance in prices will be made. The American Window Glass Company voluntarily advanced the wages of its cutters and flatteners, and this action was followed by an advance in its quotations, which are reported to be as follows: First three brackets, single strength, 90 and 20 per cent. discount; 16 x 20 single, 90 and 10 per cent. discount; balance of single strength sizes, 90 and 15 per cent. discount. Double strength, A quality, 90 and 15 per cent. discount; first five brackets B quality, 90 and 25 per cent. discount; balance of double strength B quality sizes, 90 and 20 per cent. discount. A meeting of hand blown Glass manufacturers is expected to be held in the near future, at which time it is thought that they will advance the price of single strength at least 2½ per cent., and double strength at least 5 per cent. From the foregoing it will be recognized that more stability is shown at this time than for many months, from the movement to get prices nearer the statistical condition of the market. Manufacturers' stocks are referred to as being rather light, while jobbers are said to be carrying fairly heavy stocks. The Eastern Jobbers' Window Glass Association's price for Greater New York is as follows: Single, 90 and 25 per cent. discount; Double Strength Glass, 90 and 30 per cent. discount, from jobbers' list of October 1, 1903.

Rope.—More activity is reported in the Rope market, orders being more frequent and in some instances for larger quantities. Prices appear to be fairly well maintained on the basis of the following quotations for Rope 7-16 in. in diameter and larger: Pure Manila, 9½ to 10 cents; Pure Sisal, 7¼ to 7½ cents; No. 1 Jute, ¾ in. and up, 5¼ cents; No. 2 Jute, ¾ in. and up, 5¼ cents.

White Lead.—The demand for White Lead in Oil at this season is never very heavy, but a fairly satisfactory business is reported. Quotations are unchanged, as follows, for best brands: For lots of 500 pounds and over in packages of 100 pounds and upward, 7 cents per pound. In lots of less than 500 pounds, 7½ cents per pound.

Linseed Oil.—There has been quite a marked advance in the price of Flaxseed during the week and some crushers have advanced their price 1 cent per gallon in car lots. Other crushers have made no advance. No change has been made in the price of one to five barrel lots. The price of Seed is said to justify an asking price of 45 cents per gallon for Western Raw Oil, but lack of demand keeps the price down. Quotations in barrel lots are as follows: State and Western Raw, 42 to 44 cents; City Raw, 44 to 45 cents per gallon. Boiled Oil is 1 cent per gallon advance on Raw.

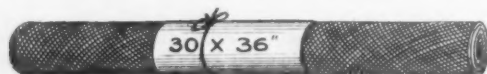
Spirits Turpentine.—A better demand at Southern points resulted in a stronger market, which has again eased off. Local demand is light and the New York market is represented by the following quotations: Oil Barrels, 40 to 40½ cents; Machine Made Barrels, 40½ to 42 cents per gallon.

Getting Rid of Odds and Ends.

To the Editor: We have taken note of the article in your issue of July 23, headed, "Odds and Ends of Wire Cloth." Mr. Haskell's method is a good one to use if the remnants accumulate, but we have found what seems to us a better way.

We do not let them accumulate. The writer has just gone over our remnants of Wire Cloth and finds that we have 11 of them on hand, while we have cut up about 100 rolls of Wire Cloth thus far this season.

We accomplish this by taking each remnant as it is made and rolling it up with a piece of paper around it, marking the size plainly on the paper. We lay all these remnants near our Wire Cloth rack and instruct the clerks when they have a call for a small piece of Wire Cloth to look over the remnants before cutting it from the roll, and if they find one that comes near the size to cut it down. It takes very little time to look over the accumulation of remnants, as by the above method we keep them reduced down to a dozen or so, and we are enabled to get full price for the pieces cut from these



Remnant of Wire Cloth Wrapped Up for Sale.

remnants, while by Mr. Haskell's method one gets little if any more than the cost of the goods.

We think by this method the loss is reduced to a minimum and we also gain the point of not having a large accumulation of remnants lying around, with the possibility of carrying them through the winter.

We apply this method to other lines also and it has always been our policy to keep all odds and ends as well as damaged or out of date goods worked off as fast as they accumulate, believing that in this way we can realize much more on them than we could to get a large accumulation and then be forced to make some kind of a drive to work the goods off.

LEWISTON, MAINE.

GEO. A. WHITNEY & Co.

The Parsons Hardware & Furniture Company, Parsons, W. Va., has recently taken possession of its new building. The salesroom is 50 x 120 ft. in size, and is exceptionally well arranged, being fitted up with Warren shelving, handsome showcases and other modern fixtures. In addition to a general line of Hardware and furniture the company carries Roofing, Cement, Lime, Sewer Pipe, Wall Paper and Carpets and Matting.

Hutchison, Sehorn & Hipp have lately commenced the Implement and Vehicle business at Charlotte, N. C. They are occupying the old stand of the Charlotte Hardware Company.

Home Made Wrench Rack.

THE Wrench rack here illustrated is home made, but none the less has been found effective and convenient in displaying and carrying the retail stock of

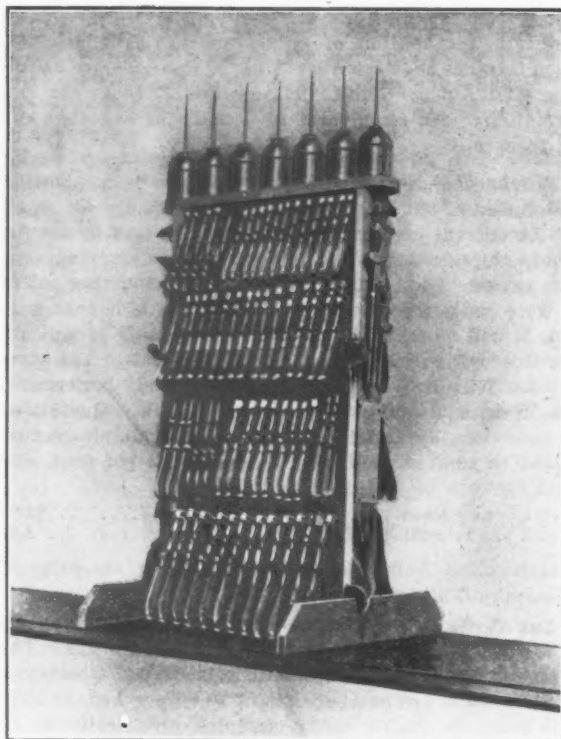


Fig. 1.—Home Made Wrench Rack.

Wrenches handled by S. A. A. Walker, Gibbon, Neb. It was planned and constructed by C. A. Gordon, one of Mr. Walker's employees. The uprights are made of 1 x 4 in. dressed stuff, 3 ft. high, while the base is 24 in. long. Between the uprights are nailed V-shaped shelves, as shown in Fig. 2, made of two pieces of wood nailed together at whatever angle it is desired to have the Wrenches hang. This arrangement throws the handles of the Wrenches out clear of the Wrenches below them. The Wrenches are hung on both sides of the V-shaped shelves by opening the jaws just enough to hang on the pieces. The top shelf of the rack illustrated accommodates 20 6-in. Wrenches, the next shelf 18 8-in. Wrenches, the third shelf 16 10-in. Wrenches and the lower one 14 12-in. Wrenches on each side. The cost and selling prices of the Wrenches are marked on a card on the side of the upright. The rack is located on the end of a counter, and when a Wrench is sold from the front side the space is filled with a Wrench taken from the rear, thus keeping the front of the rack filled all the time. It is obvious that a rack of this kind can be made of any size to accommodate the stock of Wrenches.



Fig. 2.—The Shelves Between the Uprights.

Harmon & Dixon, 117 Chambers street, New York, have been appointed exclusive agents in New York, New Jersey, Vermont, Canada and for export, by the Zelnicker Crayon Works, St. Louis, Mo. This company manufactures lumber and genuine soapstone crayons, as well as the "Suremark" brand of crayons for shipping purposes. The agents will carry a full stock of the line in New York from which to promptly execute orders.

Short Brothers have succeeded F. H. Dudley in the Shelf Hardware, Stove and Paint business, at 2033 O street, Lincoln, Neb.

THE OSTER SYSTEM OF KEEPING RECORDS OF JOBS.

THE system of keeping records of jobs described in the following article was adopted by Oster Hardware Company, Minneapolis, Minn., after trying several other methods. The company also gives attention to sheet metal work, roofing, &c.

The Job Under Consideration was done for Albert N. Oster. The work was measured up by the estimator, and the estimated cost of material,

shown in Fig. 2, under the heading "estimate of material." This page, which is 6 x 9 in. in size, also shows the actual cost of the job figured out, indicating labor and material cost \$76.44, against the contract price of \$113, a profit of \$36.56. The job book is made up of per-

ESTIMATE BLANK

OSTER HARDWARE CO.

Minneapolis, Minn. 12/28/07

M. *Albert N. Oster*

No. *3432 Portland Ave. S.*

Job at *2142 N. 26th St.*

We herewith submit specifications and bid on Sheet Metal work and Roofing as follows:

AMOUNT	IN.	REPORT	Materials	IN.	REPORT
160	20	Gutter	20	156	Mitres
90	14	Vally	14	94	Ridge Roll
		Flashing			Hipp. Tin
580		Front Deck			Shingle
		Rear			Chimney
		Bay			Galv. Iron
112	3	Galv. Conductor Pipes			Solder
20	9	Galv. Elbows			Tar Felt
60	4 1/2	Ridge Roll			" Pitch
400	10	Shingle Tins			Gravel
		Tar Roof			

The work will be done in a neat, substantial and workmanlike manner. We offer to do also stove work and furnish materials for same.

OSTER HARDWARE CO.

By *Andrew Oster*

ACCEPTANCE

The foregoing specifications are satisfactory and hereby authorize the same executed.

Date *12/28/07* Signed *Albert N. Oster*

Fig. 1.—Estimate Blank, Actual Size 4 1/4 x 8 1/2 In.

including labor, was entered on a white estimate blank, with carbon copy on buff colored duplicate, as shown in Fig. 1. The estimate blank is 4 1/4 x 8 1/2 in. in size, and indicates that the company offers to do the work for

TIME CARD

OSTER HARDWARE COMPANY

Date	No.	Hours	Name or Address
Mon. 12/29/07	2	16	<i>Albert N. Oster</i>
Tues. 12/31/07	3	24	
Wed.			<i>1386</i>
Thur.			
Fri. 1/1/08	1	10	
Sat. 1/1/08	2	20	
Sun.			

Materials	IN.	REPORT	Materials	IN.	REPORT
Gutter	20	156	Mitres		
Vally	14	94	Ridge Roll		
Flashing			Hipp. Tin		
Deck		568	Shingle		
			Chimney		
			Galv. Iron		
			Solder		
			Tar Felt		
			" Pitch		
Cond.	3	108	Gravel		
Elis	3	22			

N. B. Do not fail to make correct entries.

Sign Name here.

Fig. 3.—Time Card, Actual Size 4 x 7 In.

manent white leaves, between which are perforated buff leaves, which are torn out after receiving a carbon copy of the job. The leaves of the job book are numbered consecutively in advance on a line with "No. of job," the carbon copy receiving the same number. This page number indicates the number of the job appearing on same, and is also used when charging the job in the sales book. The duplicates of both the estimate blank and the job book entry are given to the shop foreman, who files them alphabetically in an ordinary letter file kept in the shop.

Time and Material.

When the job is commenced a memorandum is made by the foreman of all material taken to the job on the reverse side of job book duplicate. In Fig. 3 is shown a time card which is of buff paper, 4 x 7 in. in size, being bound in pad form. This shows the entire time and all material used entered on it, for comparison with the entries on the job book, Fig. 2. In actual practice the time cards are turned in to the foreman each day, upon which each workman records the time he worked on the job and the material used. A new time card is furnished each workman every morning, upon which the foreman

12/28/07

Job Taken

Amount \$ *113.00*

1/18/08

Job Finished

Cost \$ *76.44*

Profit \$ *36.56*

OSTER HARDWARE CO.

Sold to *Albert N. Oster*

Address *3432 Portland Ave. S.*

Job at *2142 N. 26th St.* No. of Job *1386*

Estimate of Material	Report	Net Cost per foot	Net cost	Price per ft.	Amount	Date	Hours	Name	Cost in/hr	Labor
160' 20" I.B. Gutter	156	7	1120	15	2400	Dec 30	8	<i>RL</i>	320	
90' 14" Valley	94	4	376	10	900	" 30	8	<i>RL</i>	320	
112' 3" Band	108	4	432	10	1120	" 31	8	<i>RL</i>	320	
20' 3" Ellis	22	10	220	15	300	" 31	8	<i>RL</i>	320	
580' I.B. Deck	568	4	2272	10	5800	" 31	8	<i>RL</i>	320	
60' 4 1/2" Ridge Roll	64	3 1/2	224	8	480	" 17	10	<i>RL</i>	400	
400 4x6 Shingle Tins	400	50	2000	75	300	" 18	10	<i>RL</i>	400	
			48.44		113.00	" 18	10	<i>RL</i>	400	
			28.00							
			76.44							

Fig. 2.—Page of Job Book, Actual Size 6 x 9 In.

\$113. This price was acceptable to the customer, and an order was given for the work to be done.

Entry in the Job Book.

The estimator then makes a copy of the estimate on the job book kept in the office, a page of which is

writes the name of the party for whom the work is being done and the job number, and each evening the cards are returned, filled out, to the foreman. He enters the material report on the shop duplicate, after which he turns the time cards over to the bookkeeper to enter the time

on the job book. This is done to enable the bookkeeper to pay wages without referring to the shop records.

The Unused Material.

tools, &c., are noted on the back of a time card upon completion of the job, and the foreman makes a comparison of used material as reported by workmen with the memorandum of material taken to the job, which was made on the reverse side of job book duplicate. This comparison enables the foreman to detect and correct errors, if any. Tools and unused material are taken to the shop immediately upon the completion of a job, or as early after as possible.



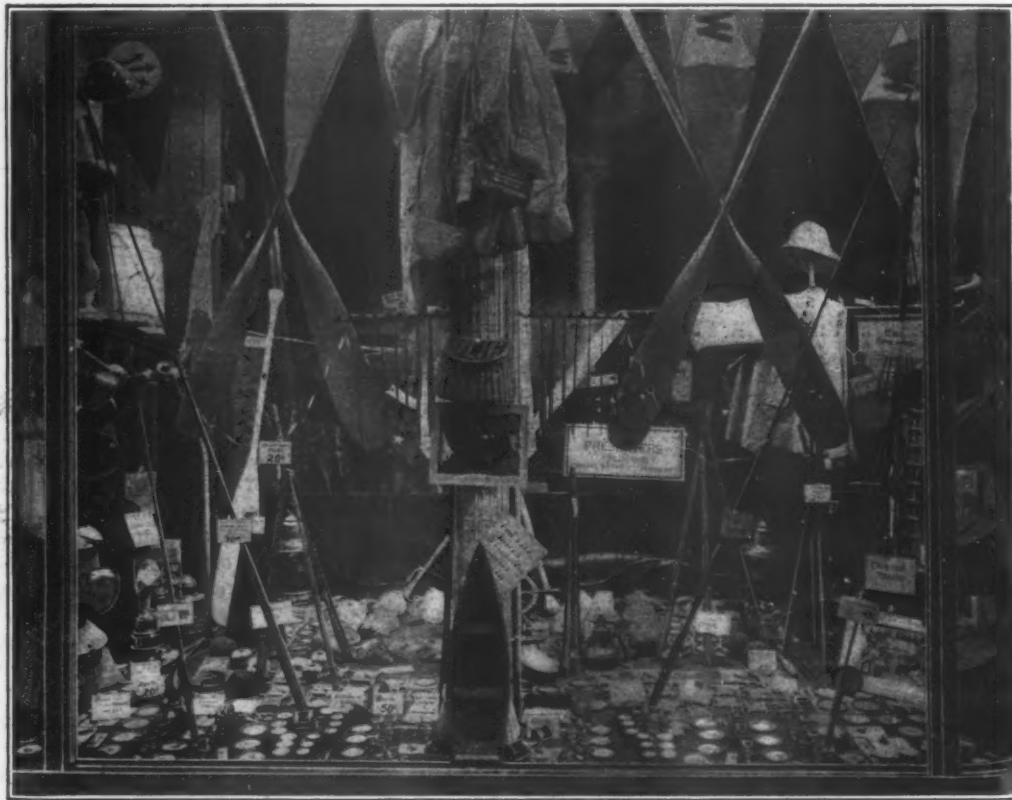
Fig. 4.—Job Book Stamped O. K. Entered.

The foreman then turns in to the bookkeeper the job book duplicate upon which the material used has been entered, as it was reported to the foreman during the progress of the work. The bookkeeper enters in the job book items not already there, afterward charging the customer in the sales book the amount contracted for, also entering the number of the job for future reference.

FISHING TACKLE AND BOAT HARDWARE WINDOW.

THE ASPINWALL HARDWARE COMPANY., Providence, R. I., makes a specialty of boat supplies and yacht Hardware. Some months ago the company moved into a fine new store, which is of good size, and may be described as a well equipped up to date establishment. It is situated on an important business street, where there is much passing, and naturally a good deal of attention is given to window displays. There are two large front windows, one of which is shown in the accompanying illustration, as dressed with Fishing Tackle and boating supplies.

The background of the window is composed of seines for catching shrimp, for bait. They are from 3 to 12 ft. long, by 4 ft. wide, and are arranged with corks and wood floats and small lead sinkers. The window contains a post or pillar, put in to strengthen a beam overhead. This is not draped or decorated, but has nickel plated arms screwed on it from which are hung small bamboo trunk rods and also steel rods to be carried in dress suit cases. In the center of the window will be observed a home made rack, which holds from 6 to 12 Poles of



Fishing Tackle and Boat Hardware Window.

After the charge has been made the job book is stamped "O. K. entered," as shown in Fig. 4.

The method which has been described pertains to contract work only. When doing work by the hour the time and material are entered on the job book, as already described, using the last column for the amount of labor charged the customer.

The Hardware business of R. H. Norris, Childress, Texas, has been incorporated with a capital stock of \$50,000, under the title of the R. H. Norris Hardware Company, the officers being R. H. Norris, president; V. Norris, vice-president; W. G. Norris, secretary and treasurer. It is the purpose of the new organization to do both a wholesale and retail Hardware business.

W. W. Chamberlain & Co., Utica, N. Y., have just organized with a capital of \$20,000 and are about to open a new store for handling Hardware, Harness, Saddlery, &c. Those interested are William W. Chamberlain, Joseph T. White and Walter E. Lewis, all of Utica.

different sizes. The gilt fish, which will be seen in the background, is sometimes hung outside the store on the awning frame, and sometimes used in the window with appropriate displays. In the front of the window is a model of a Skiff, for which orders may be taken.

In addition to these features the window contains Bristol and Rainbow steel Rods and tarpon Rods, for salt water fishing; also a display of Megaphones, for use on yachts and Paddles of all kinds for Canoes. Then there are Fish Baskets, Waterproof Silk Lines, and Tarpon Lines, put up in 250-yd. reels, Ship Bells, and Ship Clocks, with Bell Attachments, light weight, waterproof Oil Skin Suits and Hats, for ladies as well as men, wood, galvanized iron and cork mooring Buoys, ring and folding Life Preservers, Ensigns, yacht club Flags, running and riding lights, &c. The display is certainly a comprehensive and suggestive one, sure to attract and hold the attention of an angler or a sailor man.

M. J. Wentz Hardware Company has bought the Hardware and Implement business heretofore carried on by O. H. Davis, Medalla, Minn.

Hardware Organizations.

Michigan Retail Hardware Association.

The programme for the fourteenth annual convention of the Michigan Retail Hardware Association has just been issued. The association will meet at Detroit, August 12, 13 and 14, with headquarters at the Hotel Cadillac. Among the formal papers read at the meeting will be the following: "Specialization in the Hardware Business," by H. J. Fueller, Abram Cox Stove Company, Philadelphia; "Does It Pay to Advertise?" by Marshall H. Mackey, South Haven, Mich.; "Getting a Profit," by ex-President George W. Hubbard, Flint, Mich.; "Freight Overcharges," by H. H. Renshaw, manager of the freight bureau of the Wholesalers' Association of Detroit; "The Association as Viewed by the Salesmen," by Henry A. Pickert. The programme also includes addresses by A. T. Stebbins, president of the National Retail Hardware Association, Rochester, Minn., and by W. P. Bogardus, Mt. Vernon, Ohio, ex-president of the National Association.

A special feature of the programme will be a lecture, illustrated by stereopticon views, on Wednesday evening by George H. Maxwell of Chicago, editor of *The Talisman*. Mr. Maxwell's subject will be "The Future of Our Nation," in which he will touch on parcel post and other topics of vital interest to the trade. The Question Box will as usual come in for a good deal of attention. A suitable receptacle will be provided in the reception hall, and delegates are requested to write out and deposit any questions which they would like to have brought before the convention for discussion. Among topics already handed in for treatment are the following:

On what class of goods, if any, do you find the greatest difficulty in competing with the mail order houses?

With what success does the average Hardwareman meet in selling Lightning Rods, Cream Separators and Sewing Machines?

What is the best plan to follow in showing our farmer customers that the operation of the parcel post bill would not be to their interests?

Do the farmers in your locality buy goods co-operatively, and, if so, do they appear satisfied with the results?

Would you consider that a department for the exchange of goods that have proven unsalable in your section would be of benefit?

Among the entertainment features will be a trip through Riverside Park on Thursday evening, during which the visitors will be the guests of the wholesalers and manufacturers of Detroit, and also a visit to the extensive plant of the Michigan Stove Company. A. J. Scott, Marine City, secretary of the association, advises us that the indications are that the attendance this year will be larger than ever before.

Inland Empire Implement and Hardware Association.

THE Board of Directors of the Inland Empire Implement and Hardware Association, E. W. Evenson, Spokane, secretary, held its regular semiannual meeting in the office of the secretary on July 19. Questions of needed legislation were taken up with the Legislative Committee, and with the aid of the association's attorney amendments will be asked to laws affecting mortgages and contract notes. A peddler's license law will be approved, and copies will be circulated among retail merchants asking them to see candidates for the Legislature with a view to pledging them to the support of the new measure when it comes up for consideration.

Plans for the first annual Hardware, Vehicle and Implement show were laid before the board by Mr. Evenson, and these were approved, and the secretary authorized to proceed with the arrangements. As the initial exhibition of the kind ever held on the Coast, it will doubtless attract much attention. The armory at Spokane has been engaged, and as this covers a block of ground, all on one floor, ample room will be provided for the exhibits. An architect is engaged at the present time in drawing plans for the division of the hall into booths. The decorations and lighting will be elaborate. Directly following the meeting of the Inland Empire Association the Pacific

Federation of Hardware and Implement Associations will hold its convention in Spokane on January 22, 1909, and the Hardware show will remain open during the deliberations of the latter association to enable the delegates attending to inspect the displays. Hardware, Implement and Vehicle merchants from Montana, Idaho, Washington, Oregon and California will thus be given an opportunity to see the latest in the different lines in which they are interested. In the evenings it is proposed to have the exhibition thrown open to the general public at a small admission fee, the visiting merchants being admitted free by badge. A stage will be constructed and a vaudeville show given in the evenings, a band or orchestra being also in attendance.

New England Hardware Dealers' Association.

The New England Hardware Dealers' Association held their annual summer outing at Nantasket Beach, Boston Harbor, on Saturday, 1st inst. The party left Rowe's Wharf, Boston, at 1.20 p.m., and on arrival at Nantasket paraded to the ball field, led by the Arab Patrol on camels, G. T. Curtis, Simonds Mfg. Company, Fitchburg, Mass., and E. E. Stevens, Stanley Works, New Britain, Conn., showing the way. An interesting and exciting baseball game followed between nines representing the merchants and the Knights of the Grip. The traveling men finally won out by the score of 8 to 3. The merchants' nine was captained by F. E. Stacy, Springfield, and comprised M. L. Jarvis, Windsor Locks, Conn.; M. Shier, Middletown, Conn.; R. Chase, Holyoke; J. R. Morrissey, Indian Orchard; H. W. Stacy, Springfield; H. L. Russell, Holyoke; J. J. Chandler, New Haven, Conn.; E. Farland, Tremont. J. W. Rathburn, S. W. Card Mfg. Company, Mansfield, Mass., captained the travelers' team, which included W. R. Ross, Standard Tool Company, Cleveland, Ohio; E. Von Campe, Standard Tool Company, New York; H. P. Peabody, Chandler & Farquhar Company, Boston; B. P. Mansfield, Harrison & Bros., Boston; G. M. Pearce, Brown & Sharpe Mfg. Company, Providence; R. L. Van Buskirk, Frye, Phipps Company, Boston; J. F. Mitchell, Boston; W. W. Beal, Lunkenheimer Company, Cincinnati, Ohio; A. G. Bowman, Russell & Erwin Mfg. Company, New Britain, Conn., was score keeper, and Mayor W. E. Sanderson of Springfield, was umpire.

After witnessing a balloon ascension the Hardwaremen sat down to a fine shore dinner at the Palm Garden. There were no speeches, but the assembly was handsomely entertained by the Hardware Glee Club, assisted by H. F. Blaney, "the man who sings to beat the band," and who prepared an interesting parody for the occasion based on the popular song, "I'm Afraid to Go Home in the Dark." At 6 p.m. the party, led by W. A. Dow, started down the line for the numerous amusements of Paragon Park, the inspection of which occupied so much time that a run had to be made to catch the last boat for Boston. The committee having in charge the arrangements for and conduct of this most enjoyable outing were F. Alexander Chandler, Boston, chairman; W. H. Sawyer, Providence, R. I.; H. M. Sanders, Boston; S. H. Thompson, Lowell; C. L. Underhill, Somerville; H. L. Russell, Holyoke, and F. E. Stacy, Springfield.

At a recent meeting of the Executive Board of the Retail Dealers' Hardware and Implement Association of Texas, J. W. McManus, secretary, Dallas, that city was chosen as the place for holding the next annual convention. The convention dates are January 19, 20 and 21, 1909.

At the recent meeting of the Pacific Coast Hardware and Metal Association, the following officers were chosen for the ensuing year: President, T. D. Honeyman, Honeyman Hardware Company, Portland, Ore.; vice-presidents: E. T. Messinger, Hunt & Mottet Company, Tacoma, Wash.; William Schaw, Schaw-Batcher Company, Sacramento, Cal.; H. R. Boynton, H. R. Boynton & Co., Los Angeles, Cal., and A. A. Watkins, W. W. Montague & Co., San Francisco, Cal.; treasurer, F. J. Baker, George H. Tay Company, San Francisco, and secretary, Eugene Goodwin, San Francisco.

THE JONES ACCOUNT.

BY WESTMOUNT.

"I'd like to meet the man who invented all that rot about doing your duty to your employers and they in turn will look after you—perhaps."

No doubt you will think this is pretty strong, but just wait a minute till you hear the facts of the case, and I'm inclined to think you will sympathize with the speaker. He happens to be a young man of about 22 years, with a widowed mother to look after. We will call him Jimmy Parks. Seven years ago he secured a position in the large wholesale Hardware establishment of Brooks, Beamish & Co. He had worked himself up until he was in charge of the city sales department. The position, although a fairly good one from some points of view, was not at all satisfactory to our young friend, who had certain ideas of his own worth, which his recent conference with the power behind the desk showed that that particular individual did not seem to share.

Turned Down.

In plain words, Jimmy had just been endeavoring to convince the old man that he was well enough versed in the intricacies of selling goods to be put on the traveling force. The old man, however, seemed to think that more experience was necessary before a young man could be entrusted with a bundle of expense money and the good name of a firm of the magnitude of Brooks, Beamish & Co. The interview was short but to the point, and Jimmy retired from the presence with no great love for vice-presidents in general nor old Nelson Beamish in particular, as our opening paragraph readily shows.

"It's no use, mother," he said on his arrival home that evening, "the stingy old lobster won't do anything for me. He says I'm only a youngster yet and to have a little patience and my turn will come. Patience! Haven't I been patient for seven years? Haven't I done the very best I could for the firm, and that's all the thanks I get from him—patience! Well, I've got to look for a better job. We can't go on forever scrimping ourselves as we've been doing. At the rate I'm going, it'll take about 87 years to get up to a position where we can live comfortably. Fifty dollars is a princely roll to collect every month after seven years' work, isn't it?"

"Never mind, my boy, don't take it so much to heart. We've got along very well so far and another year won't make much difference. Just have a little pati—"

"Now, mother, if you don't want me to commit suicide don't start in on that patience racket. I've heard enough of that to-day already. To-morrow morning I'm going to have another go at him."

"I wouldn't bother him too much," said Mrs. Parks, "he may get angry and discharge you."

"Don't fear about that, mother. I won't give him a chance to fire me, although I may quit of my own free will. Besides, I'm not going to ask him about the road any more, but just try and drive it through his skull that 'ends' are several inches apart now and in order to make them meet, it's necessary to have some more of the long green added to my monthly roll."

More Patience.

"Well, sir, I'm in a position where I must have more money. If you can't see your way clear to give it to me, I'll have to look for it somewhere else. I'm very sorry to do so, but I must ask you to accept my resignation."

"Now don't be foolish, Parks, and spoil your prospects here. If you must have it, my reason for refusing your request is not because I don't think you deserve it, but because owing to the state of things in general, just at present, we are practically making no money and it's absolutely necessary that we cut our expenses down to the very lowest possible mark. In the fall, when I presume things will pick up, I will very gladly give you the increase you ask for. What's more, should your work during the winter warrant such a step, I might—remember I make no promise—give you a chance on the road in the spring. Now that I have given you this explanation, I hope you will do the best you can for the present. The only way we can hope to pass safely through this—depression is for every member of the staff to work with us. Think it over, my boy."

An Old Sore.

"See here, young feller, this is about the twenty-eighth time I've cursed your hide and told ye there was nothin' doin'. I've told ye before and I'll keep right on tellin' ye every time ye come here that I wouldn't take nothin' from Brooks, Beamish & Co. if they was runnin' a free refreshment booth. They're the worst bunch of robbers that ever crost the pike, and they ain't never goin' to unload no more goods in Three Forks so long as Servius Jones runs this here emporium."

"Now, Mr. Jones, do you think that's quite the square way to treat a fellow? The boss has practically threatened

to sack me if I don't close an order with you for something this trip."

"Serves ye durn well right if ye do lose yer job. Y'ought to heve more sense than to work fer a bunch of highway robbers like ye represent."

"That's all right, Mr. Jones, but you forget I have to live, and Brooks, Beamish & Co., pay me a salary. Anyway, I don't see why you should be so hard on the firm. They offered to take back all the goods you had left over from that bill Saunders sold you."

"Sure they did after they seen that I was finished with them. They come scoutin' round to try and square themselves. But nothin' more would Servius Jones hev to do with them. The balance of that overload is up in the attic yet, Mr. Man, and if it takes all the rest of me life to give it away, I'd rather do it than give yer bum firm the satisfaction of takin' it back. Good day to ye."

From the above, the reader will probably deduce that Servius Jones was a pretty sore man. So he was and I don't know that I altogether blame him. He ran a general store at Three Forks, which from the position of that village at the juncture of three roads, made it the commercial metropolis of the surrounding country. Although by no means an up to date business man, Servius Jones did fairly well, and his patronage was eagerly sought after by several of the big wholesalers. Up to about three years ago Brooks, Beamish & Co. had enjoyed all his business as far as Hardware and kindred lines were concerned, but at that time they placed a new man on the territory, which included Three Forks. Saunders was his name—a clever, young chap, but rather green, and he knew nothing about the evil resulting from "overloading" an easy customer with any lines.

Jones had generally left his buying in the hands of the travelers, who knew better than he did what he wanted. Saunders, however, wanted to make a good impression with the boss and was after big orders. Jones was a mark for him and he gave him an overdose in several slow selling lines.

Jones raised such a fuss over the affair that Saunders lost his job and the firm offered to take back any of the goods remaining unsold after one year, but Jones got his back up and in spite of the efforts of Brooks, Beamish & Co.'s best salesmen, who in turn had called upon him, from that day to this he had not bought a cent's worth from the firm.

An Opportunity.

"Good morning, Mr. Jones. I want to get a few Fish Hooks and some Lines. How's your stock?"

"G'mornin', sir. If it's Fishin' Tackle ye're lookin' for, I guess I can fix ye up all right. I got a stock of Fishin' Tackle on hand that would fit out a whalin' fleet. Step this way, sir. If ye don't find what ye want here, I got plenty more upstairs."

"What, do you carry an emergency stock? I shouldn't think in a village of this size you would find it necessary to do that. I understand that the twentieth century way of doing business is to carry a small supply of a number of lines. Mail orders are filled so quickly now that I shouldn't think it would pay you to tie up your capital in stock."

"Right ye are, but a fresh young salesman sold me such a bill of goods a couple of years back that I could jest about start doin' business as a wholesaler in some lines."

"By Jove, this must be the Jones that Saunders overloaded," thought Jimmy Parks to himself. "I wonder if I can't get next the old boy and win him back for the firm."

"If I could get rid of that stuff we might get back his account, and maybe the old man wouldn't be tickled to death."

"Would you be willing to sell that stuff if you got a chance to, Mr. Jones, even if you lost something on the deal?"

"Sure, I'd sell it, and fer half what it cost me. Why, I'd almost give it away, but there ain't nobody round these diggin's has any use fer it in quantities, and that's the only way I'd ever git rid of it."

"Ever try advertisin'?"

"Once. Put an ad. in the Three Forks Weekly Eagle, sayin': 'Servius Jones, dealer in general merchandise, has a big stock of hardware for sale, cheap.' It didn't seem to bring no trade, though, and as it cost about half a dollar, I reckoned I was wastin' money and didn't try no more."

"Will you let me sell those things for you, Mr. Jones, and be willing to accept anything I can get for them?"

"Sure, me boy—if ye can sell them—go ahead, but I'm thinkin' ye'll have to mesmerize the natives hereabouts before ye do it."

An Idea.

"Oh, I don't know! Listen. Do the natives about here like auction sales?"

"Do they! Why, there ain't a gazabo within 20 miles wouldn't let the crops rot in his fields to attend an auction. Why, I—"

"Is there a good auctioneer in the neighborhood?"

"Sure—Zeke Squires. Lives jest over the hill yonder. He could sell space in Purgatory."

"Good! Now listen. I propose to get a few bills printed and put them up at all the prominent places for 20 miles around, and also put a big advertisement in the *Eagle* on Saturday, saying there is going to be a big auction in front of your store on the 27th. Most of the goods you have upstairs have gone up in price in the last few years, and if Squires is the man you say, he should be able to sell them, so you will get half, at least, of what you paid for them. How does that strike you?"

Renewing the Account.

"Well, Mr. Jones, how did the auction come off?" asked Jimmy the day after that great event.

"Come off! Why, we didn't hev half enough stock to satisfy that bunch when they got to biddin'. We cleared out the attic, and they wasn't satisfied till half the stock in me store besides had gone under the hammer. The funny part of it was they paid more fer it than they'd 'a' done over the counter. Never had such a lively time fer years, and Servius Jones, Esq., cleared up a tidy sum. But how can I thank you, me friend?"

"Don't thank me. I want to ask you a favor."

"No need to ask. It's granted already."

"Sure?"

"Sure."

"Well, Mr. Jones, I want you to go over your stock of hardware and give me an order for anything you happen to be in need of. I work for Brooks, Beamish & Co., and if I get your account back for our house it will mean a great deal to me."

"Well, I——" said Mr. Jones, but he kept his word, and every time Jimmy makes Three Forks he gets a good order for Brooks, Beamish & Co.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price list in this column.

OTWAY COOPER, Urbana, Ohio: Catalogue F, July, 1908, 40 pages, devoted to the Cooper Rope Horse Goods, covering Horse Ties, Cattle Ties, a large assortment of Halters, &c.

UNITED STORE SERVICE & TUBE COMPANY, Boston, Mass.: Bulletin file containing bulletins issued during the past few months covering Meteor Direct Single Wire Catapult Propulsion Cash Carrier, Foot Power Pneumatic Tubes, Electric Cable Cash Carriers, Pneumatic Dispatch Tubes for store service, Cable Messengers and Pouch Carriers, and Belt Conveyors and Package Carriers.

BIDDLE HARDWARE COMPANY, 513-517 Commerce street, Philadelphia: Fall and winter Catalogue, 68 pages, devoted to Roofing, Harness, Food Choppers, Wringers, Apple Parers, Ice Skates, Sleds, Sleigh Bells, Weather Strips, Thermometers, Lanterns, Saws, Wheelbarrows, Husking Pins and Gloves, Alarm Clocks, Watches and Clocks, Pocket Cutlery, Padlocks, &c.

BUTLER BROTHERS, New York, Chicago, Minneapolis and St. Louis: Catalogue No. 676, August, 1908, in which special attention is called to their annual school sale and semiannual \$2.25 sale, the latter covering a number of items in the Hardware line which are sold at the uniform price of \$2.25 per dozen.

R-N LEATHER DRESSING COMPANY, Pawtucket, R. I.: Circulars descriptive of R-N Carriage Top Dressing, Automobile Top Dressing, Pantasote Dressing, Harness Dressing, Leather Cleaner, Stains, &c.

HUBBARD & Co., Pittsburgh, Pa., have issued a handsome illustrated bound catalogue, 141 pages, showing the products of the company, including Railway Track Tools, Hammers, Sledges, Mauls, Coal Miners' Tools, Picks, Blacksmiths' Tools, Mattocks, Grub Hoes, &c. The company also manufactures Shovels, Spades and Scoops, plain and galvanized Pole Line Hardware, Bolts, Hot Pressed Nuts, Wrought Washers and Forgings. Several of the early pages of the catalogue contain illustrations of the method of making a few of the company's railroad track tools from solid steel, showing a few of the operations

through which the tools pass in the process of manufacture. The catalogue is also accompanied by circular giving report of tests made by the Pittsburgh Testing Laboratory of the company's Open Hearth Steel Picks.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM ED. T. WOODS, Seibert, Colo., who has just opened up in business, handling Shelf and Heavy Hardware, Stoves, Sporting Goods, &c.

FROM H. J. MERRICK COMPANY, Adams, Neb., which has purchased the business in Shelf and Heavy Hardware, Stoves, Agricultural Implements, Paints and Oils and Sporting Goods formerly conducted by C. J. Klein.

FROM S. W. COLLINS HARDWARE COMPANY, which has been organized with a capital of \$50,000, fully paid, to carry on a retail and wholesale business in general Hardware, mining supplies and machinery at Fallon, Fairview and Rawhide, Neb., the main office and headquarters being at Fairview. S. W. Collins, V. B. Leonard and L. N. French are interested in the company.

FROM J. C. LAUGHLIN, 3935 Main street, Kansas City, Mo., who has commenced business, handling Hardware, Paints, Oils, Glass and Furnaces. Mr. Laughlin has acquired the stock of the Natural Gas Supply Company.

FROM MATOAKA HARDWARE COMPANY, Matoaka, W. Va., wholesale and retail Hardware, Mill Supplies, Building Materials, Paints and Oils, Roofing, &c., which has reorganized its office system and now has excellent facilities for accommodating catalogues and other literature of the trade.

FROM ROBERT PROWELL STOVE COMPANY, 313 North Twentieth street, Birmingham, Ala., which has lately been organized with a capital stock of \$15,000, fully paid. In connection with Stoves and Ranges, the company will carry an extensive line of House Furnishing Goods.

THE HERCULEVER COMPANY, Hardware Building, New York City, manufacturer of the Herculever Packing Box Opener and Board Remover, with a view to co-operating with merchants in the sale of this article, will mail without expense to the recipient with every dozen Herculevers purchased, 100 attractive illustrated circulars, 12½ x 15 in., with name and address of the merchant thereon. These circulars are intended for local distribution by the merchant to parties whom he regards as likely purchasers of the Herculever. The company is also ready to furnish Hardwaremen with handsome show cards for window and store display, and upon request will also send up to date electrotypes for use in local newspaper advertising. The company will be pleased to answer any inquiries which the trade may send for particulars in regard to its co-operative selling campaign.

THE GLOBE STOVE & RANGE COMPANY, Kokomo, Ind., has issued an especially handsome catalogue, bound in flexible leather covers, illustrating and describing its complete line of Stoves and Ranges. Ranges made of planished steel are shown in six distinct styles in all sizes. There are also steel Cook Stoves and cast Ranges, as well as Heating Stoves of different patterns, burning slack, soft coal, hard coal and wood, and Laundry Stoves. The Ranges and Stoves are attractive in appearance and afford many excellent talking points for the merchant.

O. F. McGray, Douglas, N. D., has engaged W. H. Rowe, a well-known Implement salesman as manager of his Hardware, Stove, Implement, Paint and Sporting Goods business.

Pike's Stock and Display Cabinet.

The Pike Mfg. Company, Pike, N. H., is introducing the cabinet here illustrated, in connection with its India oil stones and whetstones. The cabinet is about 31 x 24 x 12 in., finished in golden oak with plate glass front. It has two compartments, the front one for displaying a



Pike's Stock and Display Cabinet.

line of samples, and back of that are shelves for containing stock. The display compartment is lined with silk plush, with the stones attractively arranged against the plush background. In the stock department the stock can be suitably assorted and separated into groups by means of the shelves. The compartment is large enough to accommodate stock sufficient for an up to date merchant. The cases are furnished with a stock comprising only India oil stones, or with a mixed stock comprising India oil and the natural grit stones. The cases are arranged to open either back or front as the merchant prefers. Those which open in back are designed for merchants having space to display it on a counter, and those which open in front are designed to fasten on the wall. The company issues a circular describing an assortment of stones with which it will furnish one of the cabinets free of charge.

Handihook.

August Goertz & Co., 276-284 Morris avenue, Newark, N. J., have put on the market the Handihook, here shown. As is implied, it affords a handy vehicle for hanging innumerable light articles in office, den, library, factory or wherever frames, signs, calendars, clothing, kitchen utensils, &c., may be appropriately, quickly and easily suspended without perceptible damage, a thumb push being sufficient in plaster or wood. The hook will sustain weights up to 10 lb., and with the exercise of



Fig. 1.—Front View

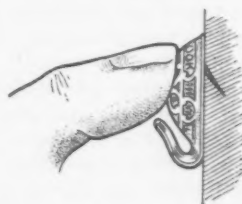


Fig. 2.—Side View.

Handihook.

some ingenuity greater weights may be hung. For example, a frame of 20 lb. weight, with two hooks and two independent wires or cords leading vertically from screw eyes to hooks, would safely distribute the weight. Fig.

1, front view, shows actual diameter, there being a depth of 3-16 in., inside of which is a brace of the same material into which the strong but finely tapered steel pin is imbedded. Fig. 2 gives a side view of the button and steel pin, but the actual dimensions are 15-16 in. from the top to bottom of hook. There are four attractive finishes, including natural brass, and the goods are put up in pasteboard boxes of 12 hooks each. For show windows or counter display having suitable advertising matter, 12 boxes are mounted on an easel back card from which to sell.

Robinson Tool Set.

The M. W. Robinson Company, 79 Chambers street, New York, has added the Robinson Tool Set, No. 7, here shown, to its line of pin vises and kindred small tools for working metals. The tool, made entirely of steel, is 6 1/4 in. long, 7/8 in. diameter of handle and chuck and is

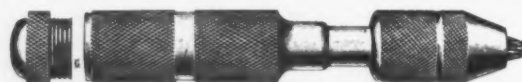


Fig. 1.—Robinson Metal Tool Set.

handsomely finished by knurling, polishing and nickeling. The eight tools carried in the hollow handle are uniformly 2 in. long, with shanks about 1/8 in. diameter, and consist of two fluted drills and one each twist drill, awl, reamer, scriber, chisel and screw driver of fine quality, tempered to a straw color; both handle and tools being absolutely guaranteed. The chuck jaws, of high grade tool steel, are slotted transversely near their base, so that

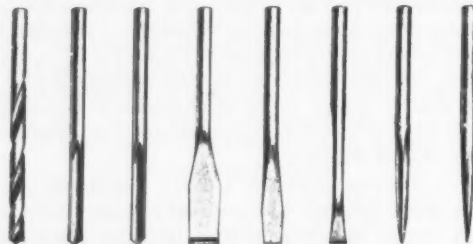


Fig. 2.—Accompanying Tools, Five-eighths Size.

they may be easily and positively carried for opening or closing by means of three longitudinal spring steel members, actuated by revolving the tubular handle. There are no spiral springs or other working parts to easily get out of order, each tool being packed individually in a neat telescope pasteboard box and labeled on top and end.

Portable Steel Clothes Post.

The Milwaukee Steel Fence Post Company, Milwaukee, Wis., is introducing the portable steel clothes post shown herewith. The posts are made of high carbon steel tubing, 1 1/4 in. in diameter, 6 1/2 ft. above ground and filled with cement, which is said to add 75 per cent. to their strength and prevents rusting inside. The base or part under ground is separate from the post, and is made 2 1/2 or 3 ft., as may be desired. They are driven level with the ground and left there, while the post, which fits into the base, can be inserted or removed whenever desired. Among the advantages possessed by the posts the following may be mentioned: That they are practically indestructible; that no holes have to be dug, as the bases are easily driven into the ground, and that the posts can be readily removed, leaving the lawn free for mowing the grass or other purposes.



Portable Steel Clothes Post.

O. H. Davis, Madelia, Minn., has sold his Hardware, Stove, Implement and Vehicle business to Martin J. Wentz.

Willis Double Section Key Ring.

The Willis-Du Bois Company, 150 Nassau street, New York, which is also the New York office and general sales manager of the New Jersey Aluminum Company, has just brought out the Willis double section key ring, here shown. It can be marketed as merchandise in the usual way or purchased in quantities for gratuitous distribution as a souvenir, in which case it is preferably stamped with such lettering as the purchaser desires, of which the illustration is an example. Some of its principal features are that it is light, being cut with a die at one operation from high grade sheet steel, approximately 3-64 in. thick, and afterward polished and nicked; that household keys may be accommodated on one side and business or other keys on the other; that keys may be instantly snapped on or off without difficulty, while the surface, one or both sides, may be utilized for a business card or device, according to the publicity sought. One advantage as a souvenir, aside from the slight cost, is that in serving a necessary and useful purpose it possesses the merit of being a continual reminder of the donor and always carried.



Willis Double Section Key Ring.

The Acme Shear Company.

The Acme Shear Company, Bridgeport, Conn., manufacturer of high grade solid steel, cast shears, scissors and tinnery snips, is showing in its W-2 catalogue and price-list recently issued among new goods, oval steel screw cast straight and bent trimmers, left hand cast shears, Hicks' pattern shears and the American bevel button hole scissors. Three special cards showing different assortments of shears and scissors have also been added to its line. Half-tone illustrations of the company's plate etching work are likewise presented. Wiebusch & Hilger, Ltd., 106-110 Lafayette street, New York, are the company's special representatives, and carry a complete sample line of its shears.

The Gem Rotary Ash Sifter.

The Gem Mfg. Company, Chelsea Station, Boston, Mass., is manufacturing the new form rotary ash sifter, shown herewith. It is made of heavy steel throughout,



The Gem Rotary Ash Sifter.

with a hexagonal barrel, all sections being double seamed together, and after being assembled is galvanized as a unit by the hot bath process to produce a strong and lasting machine. The barrel gives the impression of generous dimensions, and has a hopper with a capacity of two coal hods, which delivers freely to the screening cylinder; being unobstructed, it is shown, because of the

unique manner in which the cylinder is supported upon its shaft. The delivery of the screened coal is said to be equally easy, while the long cylinder gives ample opportunity to thoroughly screen all the dross from the coal. The screening cylinder, which is referred to as being a true cylinder, has ends and supports of pressed steel, into which the wire mesh is forced and closed in. The bearings of the crankshaft are of pressed steel, resulting in the shaft and screen revolving accurately. The screening cylinder can be assembled or dismounted quickly to make renewals cheap and easy.

Barron Sanitary Water Cooler.



Fig. 1.—Barron Sanitary Water Cooler.

row chamber running all the way round the center compartment which holds the ice. Around the outside of the

The water cooler here illustrated is manufactured by the G. F. Barron Cooler Company, Rochester, N. Y. It is referred to as especially sanitary because neither the ice nor the outside air comes in contact with the water. The construction of the cooler will be understood from the sectional view shown in Fig. 2. It may be attached to the regular city water pressure, the intake being through the pipe on the right hand side of the illustration. The water is received into a narrow chamber running all the way round the center compartment which holds the ice.

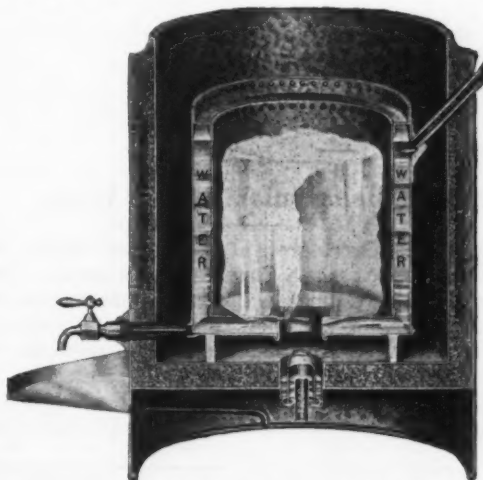


Fig. 2.—Barron Water Cooler, Interior View.

cooler is a nonconductor, keeping out the heat, because of which the ice is said to melt very slowly, making the cooler economical. Several sizes and capacities of coolers are offered.

Vaughn's Improved Screw Driver.

Edwin C. Walker, who has succeeded Chas. A. Vaughn, Seitzland, Pa., in the manufacture of hardware specialties, has moved the stock and equipment to a new factory in Urbana, Ohio, where special attention is given to the manufacture of Vaughn's improved screw drivers, which are made in a number of styles and a variety of sizes. The blade of the screw driver is of forged steel with a square shank, entering a ferrule cast of mild steel, which has inwardly projecting lugs designed to imbed themselves in the wood when the handle is forced into the ferrule. The hole in the ferrule, at the end where the blade enters, is cast square, and is then machined out part way through to receive the round portion of the blade. The screw drivers are warranted by the manufacturer.

The American Savings Bank.

The Johnson Mfg. Company, New Haven, Conn., is putting on the market the savings bank here illustrated. It is 5 in. high and 3½ in. in diameter, and registers nickels, dimes, quarters and half dollars up to \$25 in amount. When the bank is open the indicating figures can be set back to 0 by turning the knob. All coins



The American Savings Bank.

are dropped into one slot, and the value of each is automatically added to the amount already contained in the bank, the total amount deposited being shown in plain figures. Each coin is fully registered before it drops into the receptacle at the bottom. The registering mechanism is alluded to as being a new mechanical principle of extreme simplicity, while the bank is pleasing in appearance, substantial and durable. It is locked by a practically unpickable five-tumbler lock, with small, flat key.

The Globe Quick Acting Vises.

Characteristic features of a line of woodworking vises made by the Globe Vise & Truck Company, Grand Rapids, Mich., are quick action, even grip and strength of construction. Fig. 1 shows style 10-H of these vises, and its general construction is shown in sectional view, Fig. 2. The use of a coarse thread on the screw gives a very large wearing surface, both on the nut and screw. This is obtained by the combination of an auxiliary in-

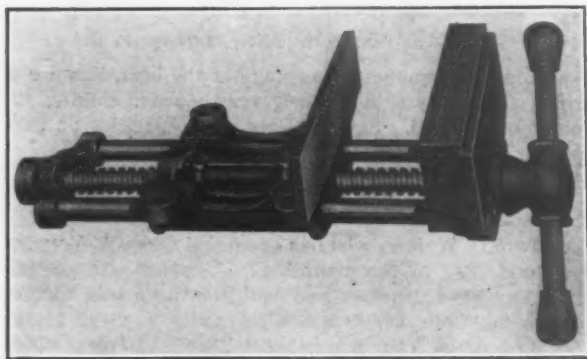


Fig. 1.—The Globe Quick Acting Vise.

cline with the screw, which, it is claimed, practically doubles its gripping power and constitutes one of its distinctive advantages. The nut, which is 7 in. long, made of hard lubricating brass, revolves with the screw, and is carried backward by means of the incline on the nut at a point where the threads always mesh with the

threads of the screw, causing the jaw to grip readily. A jaw movement from 7-16 to ⅝ in. is effected by one turn of the handle. The vise is fitted with a screw made of 1⅝-in. 20-carbon steel, with longitudinal cuts through the thread sections, which permit the vise to be quickly opened or closed by sliding the screw backward

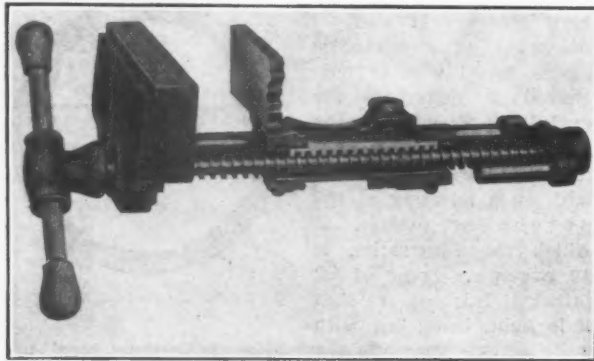
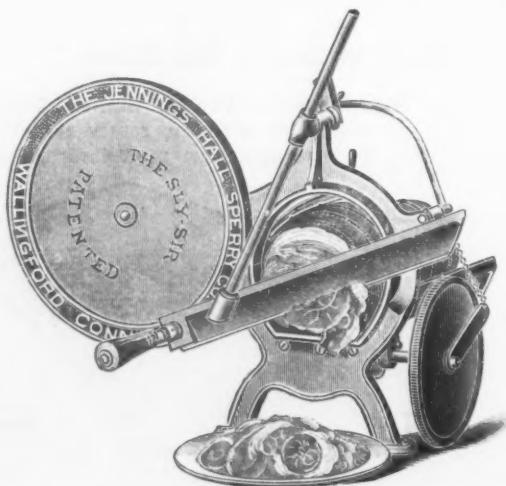


Fig. 2.—Sectional View of Quick Acting Vise.

or forward. A lining of kiln dried maple covers the front jaw, while the rear compressing surface, in this style, is iron. The entire absence of springs contributes much to durability of the vise and greatly diminishes the chance of breakage and the expense and annoyance incident thereto. The vise is described as containing no delicate castings liable to breakage under stress of service with every part built to stand a maximum amount of wear. It is furnished with lugs by means of which it is bolted to the under side of the bench. Style 10-H here shown is especially adapted for manual training school use and is of the following dimensions: Width of jaw, 10 in.; depth of jaw, 4 in.; opening of jaw, 8 in.; shipping weight, 38 lb.

The Sly-Sir Meat Slicing Machine.

The Jennings-Hall-Sperry Company, Wallingford, Conn., is putting on the market a new meat slicing machine, shown herewith. The cutting is not circular, but



The Sly-Sir Meat Slicing Machine.

approaches very closely the motion made in slicing meats by hand, a downward shearing stroke. As the knife stroke is completed, the ham, bacon or other meat to be sliced is moved forward automatically, a gauge on the machine permitting the user to cut slices from paper thinness up to ⅝ in. in thickness. All of the meat may be sliced. The company states that the machine may be used for slicing bread, cheese, &c., as well as meat. The thin tempered steel blades may be purchased of the company for 25 cents, which is practically as cheap as the cost of sharpening the old blades.

Toledo Steering Coaster.

The Toledo Metal Wheel Company, Toledo, Ohio, manufacturer of express wagons, tricycles, velocipedes, hand cars and other children's and dolls' vehicles, has added to its line the steering coaster here shown. It is made of steel and thoroughly seasoned second growth ash. All woodwork is natural color, varnished and decorated. The runners, which are enameled carmine, are made of Buttonhead Tee steel, which is oval on the bottom and said to give great swiftness and at the same time making the runner comparatively light in weight. Another feature is the knees, which are in the form



Toledo Steering Coaster.

of arches. The ash frame is used in preference to metal to give the sled greater flexibility. Three sizes are offered: No. 32½, which is 36 in. long, 12 in. wide and 5½ in. high; No. 33, 40 x 13 x 5½ in., and No. 34, 46 x 15 x 6½ in.

The Hummer Diamond Tool Grinder.

Included in the line of grinders made by the Luther Brothers Company, Milwaukee, Wis., is the foot power tool grinder, here illustrated. It is exceedingly simple in its construction and is designed as a ready shop convenience for sharpening tools. Power is supplied by a lever treadle connected with a sliding sleeve fitting a screw groove on the lower end of the driving shaft. Motion is communicated to the grinding wheels by miter gears at the top of the shaft, which are enclosed in a case filled with grease, from which all bearings are lubricated. The frame consists of a hollow casting with yoke set on a base which furnishes a bottom bearing for the perpendicular driving shaft, the whole forming a support for the gears and arbor bearings above. The means of propulsion adopted does away with the use of a ratchet, and, besides affording ample power, it is not subject to rapid wear because of the large wearing surface afforded. There are but three bearings in the grinder, the principal one of these being a ball bearing. The machine carries two 7 x 1¼ in. carborundum wheels, which are secured by large flanges. Beside two tool rests adjustable in all directions, the machine is supplied with a chisel and plane bit guide which is independent of the regular tool rest and is always in position for use. Other special attachments for the grinding of twist drills and skates are furnished on order. The machine stands 40 in. high and weighs crated 68 lb. It is furnished with one 7 x 1¼ in. fine grit and one 7 x 1¼ in. medium grit wheels, and will carry wheels up to 10 in. in diameter.



The Hummer Diamond Tool Grinder.

Ideal Side Acting Switches.

The Ideal Switch Company, Incorporated, Plainville, Conn., is bringing out a line of side acting switches, three styles of which are shown in the accompanying illustrations. They are especially designed for use on motor boats and gas engines. The company's self-locking spring



Ideal Side Acting Switches.

contacts are employed in a new form, as will appear from the illustrations, and the switches may be mounted with blades hanging down, which is declared to be their natural position.

Morris Peanut Vending Machine.

The Coleman Hardware Company, Morris, Ill., manufacturer of Builders' and Cabinet Hardware, light grey iron castings and specialties, is putting on the market the machine for vending salted peanuts shown in the accompanying illustration. The mechanism is of brass, nickel plated, and the iron case is electro plated both in old copper and nickel. The glass globe which contains the nuts is of heavy, seamless plate glass, and is fastened to the base and top with a patent fastener. There are no rods to interfere with cleaning inside, but the machine has an agitator which prevents salt settling in the bottom and stale nuts collecting in the corners, thus insuring clean, fresh nuts. The nuts are deposited in a swinging cup, from which they are received into the hand. The coin detecting device is said to be simple and accurate. It will receive a slug and deposit it in the cash box, but will not deliver the goods unless a good coin is used. It is stated that nuts which cost from 6 to 10 cents per pound are sold in the machine for 38 cents per pound.



Morris Peanut Vending Machine.

J. H. Gilbert & Sons have opened a new store in Greeley, Colo., and will handle Implements, Vehicles, Fencing, &c.

The Electric Suction Sweeper.

The electric suction sweeper, shown herewith, combines the cleaning effects of the broom by an electrically operated brush with the dust prevention and absorption of the vacuum process by an electrical section fan which is designed to draw every particle of sand, dust and lint into the dirt bag. The device is a combined sweeper and vacuum cleaner, and is handled like an ordinary carpet sweeper, going into corners and crevices to absorb all the

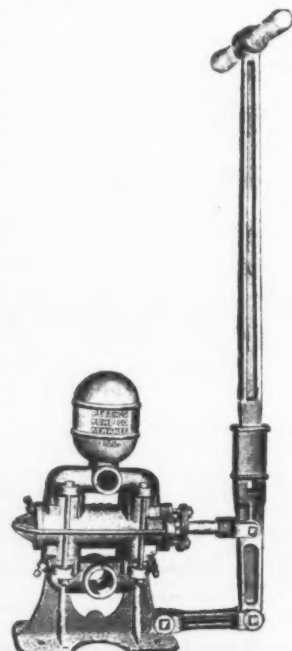


The Electric Suction Sweeper.

dust with the dirt. It is pointed out that the device is so simple that it can be operated by a child, as the electric current does the actual work. The sweeper is readily attached to any light circuit by a reinforced cord. The fact is emphasized that the sweeper does its work without spreading dust and germs, thus avoiding injury to furniture and health. The sweeper is strongly built, well finished and simple in construction. It is being put on the market by the Electric Suction Sweeper Company, Canton, Ohio.

Peter's Horizontal Double Acting Force Pump.

A newly designed double acting force pump, shown in the accompanying illustration, is being made and offered by the Peter's Pump Company, Kewanee, Ill. Besides rendering efficient service in the ordinary work for which low down pumps of this type are usually required, it is especially adapted to the combined pumping of water and air for private water works systems. The pump differs from the usual construction in that it has two perpendicular barrels, at either end of the cylinder, in which the valves are located; the suction valves being below the main cylinder and the outlet valves above. It is claimed that by means of this construction, which compels an upward travel of water and air, the presence of ports and pockets that might interfere with its successful operation as an air pump is eliminated. Among other features of advantage claimed are that, being tapped on both sides for suction pipe, it may be set right or left without making changes, and that the cylinder heads, being secured by a yoke held in position by two nuts, are easily removable. An extra long stuffing box provides adequate support to the piston rod. Besides drain plugs at the bottom of each valve there is a prime plug at the rear head. A large air chamber and ample valve openings contribute to the free flow of water and ease of operation. The pump has a 2½ in. brass lined cylinder, a ½ in. solid brass piston rod, and uses any ordinary 2½ in. check valve leathers. When pumping air one of the suction inlets is plugged and tapped for an ½ in. pet cock, which obviates the necessity of tapping the suction pipe for an air cock.



Peter's Horizontal Double Acting Force Pump.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

Animal, Fish and Vegetable Oils—	gal.
Linsed, State and Western, raw	41 @ 42
City, Boiled	45 @ 46
City, Raw	44 @ 45
Raw, Calcutta, in bbls.	70 @
Lard, Prime, Winter	68 @ 69
Extra No. 1	54 @ 56
No. 1	47 @ 52
Cotton-seed, Crude, f.o.b. mill	42 @
Summer Yellow, prime	43 @ 43 1/2
Summer White	45 @ 46
Yellow Winter	47 @ 48 1/2
Tallow, Acidless	52 @ 55
Menhaden, Brown, Strained	38 @
Southern	40 @
Light Strained	38 @
Bleached Winter	40 @
Ex. Bleached Winter	42 @
Cocanut, Ceylon	39 @ 6 1/2
Cochin	39 @ 7 1/2
Cod, Domestic, Prime	42 @ 44
Newfoundland	43 @ 45
Red Blaine	39 @ 41
Saponified	37 @ 69
Olive, Yellow	57 @ 58
Nutsfoot, Prime	55 @ 58
Palm, Lagos	39 @ 5 1/2 @ 6

Mineral Oils—

Mineral Oils—	gal.
Black, 29 gravity, 25@30 cold test	13 @ 13 1/2
29 gravity, 15 cold test	13 1/2 @ 14
Summer	12 1/2 @ 13
Cylinder, light filtered	20 1/2 @ 21
Dark, filtered	18 @ 19
Paraffine, 903-907 sp. gravity	14 1/2 @ 15
903 sp. gravity	13 1/2 @ 14
883 sp. gravity	11 @ 11 1/2
Red	13 1/2 @ 14

Miscellaneous—

Miscellaneous—	ton
Barites:	
White, Foreign	18.50 @ 20.50
Amer., floated	18.00 @ 20.00
Off color	13.00 @ 16.50
Chalk, in bulk	3.00 @ 3.40
China Clay, Imported	11.50 @ 18.90

Paints, Oils and Colors	gal.
Cobalt, Oxide	100 lb. 1.45 @ 2.60
Waiting, Commercial	100 lb. 42 @ 52
Gilders	100 lb. 55 @ 60
Ex. Gilders	100 lb. 60 @ 65

Putty, Commercial—

Putty, Commercial—	100 lb.
In bladders	1.70 @ 1.80
In bbls. or tubs	1.20 @ 1.45
In 1 lb. to 5 lb cans	2.65 @ 2.95
In 12 1/2 to 50 lb cans	1.50 @ 1.90

Spirits Turpentine—

Spirits Turpentine—	gal.
In Oil bbls.	40 1/2 @ 41
In machine bbls.	41 @ 41 1/2

Glue—

Glue—	lb.
Cabinet	12 @ 15
Common Bone	7 1/2 @ 9
Extra White	18 @ 24
Fish, liquid, 50 gal. bbls., per gal.	60 @ 1.20
Ion	12 @ 14
Foot Stock, White	9 @ 11
Foot Stock, Brown	12 @ 14
German Common Hide	10 @ 12
German Hide	12 @ 19
French	10 @ 16
Irish	13 @ 16
Low Grade	10 @ 12
Medium White	14 @ 17

Gum Shellac—

Gum Shellac—	lb.
Bleached, Commercial	26 @ 27
Bone Dry	31 @ 32
Button	30 @ 40
Diamond 1	47 @ 48
Fine, Orange	34 @ 35
A. C. Garnet	27 @ 28
G. A. L.	20 @ 21
Kala Button	18 @ 19
D. C. Garnet	48 @ 49
Octagon B.	39 @ 40
T. N.	27 @ 28
V. S. O.	47 @ 48

Colors in Oil—

Colors in Oil—	lb.
Black, Lampblack	12 @ 14
Blue, Chinese	36 @ 46
Blue, Prussian	32 @ 36

Paints, Oils and Colors	lb.
Blue, Ultramarine	13 @ 16
Brown, Vandyke	11 @ 14
Green, Chrome	12 @ 16
Green, Paris	24 @ 24
Sienna, Raw	12 @ 15
Sienna, Burnt	12 @ 15
Umber, Raw	11 @ 14
Umber, Burnt	11 @ 14

White and Red, Lead &c.—

White and Red, Lead &c.—	100 lb.
Lead, English white, in Oil	10 1/2 @ 10 1/2
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	7
Dry and in Oil, 25 and 50 lb kegs	7 1/2
Dry and in Oil, 12 1/2 lb kegs	7 1/2
In Oil, 12 1/2 lb tin pails	8
In Oil, 1, 2, 3 and 5 lb tin cans, ass't.	9

Red Lead and Litharge:

Red Lead and Litharge:	100 lb.
In 100 kegs	7
In 25 and 50 lb kegs	7 1/2
In 12 1/2 lb kegs	7 1/2
In lots of less than 500 lbs, 1/2 c @ 1/2 lb advance over above prices of White and Red Lead and Litharge	
Lead, American. Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry—

Zinc, Dry—	lb.
American, dry	5 1/2 @ 5 1/2
Red Seal (French process)	6 1/2 @ 7
Green Seal	6 1/2 @ 7
German Red Seal (French process)	6 1/2 @ 6 1/2
Green Seal	7 1/2 @ 7 1/2
White Seal	7 1/2 @ 8 1/2
French, Red Seal	8 1/2 @ 8 1/2
Green Seal	10 1/2 @ 10 1/2

Dry Colors—

Dry Colors—	lb.
Black, Carbon	6 1/2 @ 10
Black Drop, American	3 1/2 @ 8

Paints, Oils and Colors	lb.
Black Drop, English	5 @ 15
Black, Ivory	16 @ 20
Lamp, commercial	4 @ 6
Blue, Celestial	4 @ 6
Blue, Chinese	31 @ 33
Blue, Prussian	29 @ 31
Blue, Ultramarine	3 1/2 @ 15
Brown, Spanish	1 1/2 @ 1
Carmine, No. 40	33.10 @ 35.25
Green, Chrome, ordinary	3 1/2 @ 5
Green, Chrome, pure	17 @ 22
Ocher, American	17 @ 16.00
American Golden	2 1/2 @ 3 1/4
French	1 1/2 @ 2
Foreign Golden	3 @ 4
Orange Mineral, English	10 @ 12
French	12 1/2 @ 13
German	12 @ 13
American	9 @ 10
Red, Indian, English	4 1/2 @ 6
American	3 @ 3 1/4
Red, Turkey, English	4 @ 10
Red, Tuscan, English	7 @ 10
Red, Venetian, Amer.	100 lb. \$0.50 @ 1.25
English	100 lb. \$1.15 @ 1.60
Sienna, Italian, Burnt and Powdered	3 @ 9
Italian, Raw, Powdered	3 @ 7
American, Raw	1 1/2 @ 2
American Burnt and Pow'd.	1 1/2 @ 2
Talc, French	100 lb. \$18.00 @ 25.00
American	100 lb. 15.00 @ 25.00
Terra Alba, French	100 lb. 90 @ 1.00
English	100 lb. 80 @ 1.00
American	100 lb. No. 1. 75 @ .80
American	100 lb. No. 2. 60 @ .65
Umber, T'key, Bnt. & Pow.	2 1/2 @ 3
Turkey, Raw and Powdered	2 1/2 @ 3
Burnt, American	1 1/2 @ 2
Raw, American	1 1/2 @ 2
Yellow, Chrome, Pure	13 1/2 @ 15
Vermilion, American Lead	7 @ 25
Quicksilver, bulk	5 @ 7
Quicksilver, bags	6 @ 66
English, Imported	15 @ 70
Chinese	30.90 @ 1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33% @ 33% & 10% signifies

that the price of the goods in question ranges from 33% per cent. discount to 33% and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Columbian and Domestic.....33%
North's.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, 1/2 doz. pairs, Nos. 1, \$0.75; 2, \$0.60; 4, \$1.00; 5, \$0.50.
Fernald Quick Shifter, 1/2 doz. pairs \$2.00@3.00

Anvils—American—

Eagle Anvils.....1/2 lb. @ 8 1/2¢
Hay-Budden, Wrought.....9 1/2¢@9 9/16¢
Trenton.....1/2 lb. 9 1/2¢@9 9/16¢

Imported—

Swedish Solid Steel Sisco, Superior, 1/2 lb. 10 1/2¢
Peter Wright & Sons, 1/2 lb. 8 1/4 to 3 1/8 lb. 11¢; 350 to 600 lb. 11 1/2¢.

Anvil, Vice and Drill—

Millers Falls Co., \$18.00.....15¢@10%

Apple Parers—See Parers, Apple, &c.

Aprons, Blacksmiths'—

Livingston Nail Co.....10%

Augers and Bits—

Com. Double Spur.....75¢@100¢
Jennings' Patn., Bright.....65¢@100¢
Black Lip or Blued.....65¢@65¢
Boring Mach. Augers.....70¢
Car Bits, 12-in. twist.....40¢@10%
Ford's Auger and Car Bits.....40¢@5%
Ft. Washington Auger Co., Concord's.....35%
Forster Pat. Auger Bits.....25%
C. E. Jennings & Co., No. 10 ext. lip, R. Jennings' list, 25¢@7 1/2¢
No. 30, R. Jennings' list.....50%
Russell Jennings'.....25¢@10¢
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist.....60%
Snell's King Auger Bits.....50%
Wright's Jennings' Bits.....50%

Bit Stock Drills—

See Drills, Twist.

Expansive Bits—

Clark's Pattern, No. 1, 1/2 doz., 25¢; No. 2, \$18.....60¢@10%
Ford's, Clark's Pattern.....60¢@5%
C. E. Jennings & Co., Steer's Pat. 25%
Lavigne Pat., small size, \$18.00; large size, \$26.00.....60¢@10%
Swan's.....60%

Gimlet Bits—

Common Dbl. Cut.....\$3.00@3.25
German Pattern, Nos. 1 to 10, \$4.75; 11 to 14, \$5.75

Hollow Augers—

Bonney Pat., per doz., \$5.50@6.00
Ames.....25¢@10%
Universal.....20%

Ship Augers and Bits—

Ship Augers.....40¢@100¢
Ford's.....35%
C. E. Jennings & Co., L'Hommedieu's.....6%
Watrous'.....33%
Snell's.....48%

Awl Hafts—See Handles, Mechanics' Tool.

Awls—

Brad Awls:
Handled.....gro. \$2.75@3.00
Unhanded, Shiddered.....gro. \$3.65@66¢
Unhanded, Patent.....gro. \$66¢@70¢
Peg Awls:
Unhanded, Patent.....gro. \$16¢@34¢
Unhanded, Shiddered.....gro. \$65¢@70¢
Scratch Awls:
Handled, Com.....gro. \$3.50@1.00
Handled, Socket.....gro. \$11.50@12.00

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

Single Bit, base weights: Per doz.
First Quality.....\$4.75@5.00
Second Quality.....\$4.25@4.50
Double Bit, base weights:
First Quality.....\$7.00@7.50
Second Quality.....\$6.50@6.75

Axle Grease—

See Grease, Axle.

Axles—

Concord, Loose Collar.....1/4¢@1/2¢
Concord, Solid Collar.....1/4¢@5%
No. 1 Common, Loose.....3/4¢@1¢
No. 1 1/2 Common, New Style.....1/4¢@1/2¢
No. 2 Solid Collar.....1/4¢@1/2¢
Half Patent:
Nos. 7, 8, 11 and 12.....70%
Nos. 13 to 15.....70%
Nos. 15 to 18.....70¢@100¢@10%
Nos. 19 to 22.....70¢@100¢@10%

Boxes, Axles—

Common and Concord, not turned.....1/2 lb. 5¢@6¢
Common and Concord, turned, 1/2 lb. 6¢@7¢
Half Patent.....1/2 lb. 9 1/4¢@10¢

Bait—

Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20¢@5%

Balances—Sash—

Caldwell new list.....50¢@10%
Fullman.....50¢@10%

Spring—

Light Spring Balances.....60¢@60¢
Chatillon's:
Light Spg. Balances.....50¢@50¢
Straight Balances.....40¢@40¢
Circular Balances.....50¢@10%
Large Dial.....30%
Barb Wire—See Wire, Barb.

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb., 2 1/4¢@2 1/2¢
No. 10 Ideal, Nickel Plate.....\$9.50

Towel—

No. 10 Ideal, Nickel Plate.....\$9.50

Beam, Scale—

Scale Beams.....40%
Chatillon's No. 1.....30%
Chatillon's No. 2.....40%

Beaters, Carpet—

Holt-Lyon Co., No. 12 Wire Coppered 1/2 doz., \$0.80; Tinned.....\$0.85
No. 11 Wire Coppered 1/2 doz., \$1.15; Tinned.....\$1.20
No. 10 Wire Tinned.....1/2 doz., \$1.50

Beaters Egg—

Dover Stamping & Mfg. Co., No. 1, Genuine Dover, per gro., No. 2, Family Size, \$7.50; No. 3, Extra Family Size, \$24.00; No. 4, Hotel Size, \$30.00.
Holt-Lyon Co., No. 5, Jap'd, \$0.80; No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65.
Lyon, Jap'd, per doz., No. 2, \$1.35.
Taplin Mfg. Co., Improved Dover, per gro., No. 60, \$6.00; No. 75, \$6.50; No. 100, \$7.00; No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$8.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00.

Bellows—

Blacksmith, Standard List:
Split Leather.....60¢@100¢
Grain Leather.....50¢@100¢

Hand—

Inch.....6 7 8 9 10
Doz.....\$5.00 5.50 6.00 6.50 7.50

Molders—

Inch.....10 12 14 16
Doz.....\$7.50 9.00 12.00 15.00

Bells—Cow—

Wrought Cow Bells.....75%
Jersey.....75¢@10%
Texas Star.....50%

Door—

Home, R. & E. Mfg. Co.'s.....55¢@10%

Hand—

Polished, Brass.....60¢@60¢@10%
White Metal.....60¢@60¢@10%
Nickel Plated.....70¢@10%
Sicis.....50¢@10%
Cone's Globe Hand Bells.....33%@35%

Miscellaneous—

Farm Bells.....1/2 lb. 2 1/4¢@2 1/2¢
Church and School.....60¢@60¢@10%

Belting—Leather—

Standard.....70¢@100¢@10%
Light.....75¢@10%
Cut Leather Lacing.....60¢@60¢@10%
Leather Lacing Sides, per sq. ft. 20¢

Rubber—

Competition (Low Grade).....70¢@100¢@10%
Standard.....60¢@100¢@10%
Best Grades.....40¢@50%

Bench Stops—

See Stops, Bench

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....20%

Bicycle Goods—

John S. Leung's Son & Co.'s 1907 list:
Chain, Parts, Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See Augers and Bits.

Blocks Tackle—

Common Wooden.....75¢@75¢
B. & L. B. Co., Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50¢@10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50¢@10%; Wire Rope Snatch, 50%.

Lane's Patent Automatic Lock and Junior.....30%
See also Machines, Hoisting.

Boards, Stove—

Paper and Wood Lined.....55%
Embossed.....55%

Boards, Wash—

See Washboards.

Bobs, Plumb—

Keuffel & Esser Co.....33 1/3%

Bolts

Carriage, Machine, &c.—Common Carriage (cut thread):
1/2 x 6 and smaller.....75¢@100¢
Larger and longer.....70¢@10%
Phila. Eagle, \$3.00 list.....80¢@10%
Bolt Ends.....70¢@10%
Machine (Cut Thread):
1/2 x 4 and smaller.....75¢@100¢
Larger and longer.....70¢@10%

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knobs:
Inch.....3 4 5 6 8
Per doz.....\$0.30 .35 .45 .60 .80
Cast Iron Spring Foot, Jap'd:
Inch.....6 8 10
Per doz.....\$1.20 1.50 2.25
Cast Iron Chain, Flat, Japanned:
Inch.....6 8 10
Per doz.....\$1.00 1.40 1.65
Cast Iron Flat Shutter, Jap'd, Brass Knobs:
Inch.....6 8 10
Per doz.....\$0.75 .95 1.25
Wrought Barrel Japanned:
80¢@100¢@10%
Barrel Bronzed.....60¢@10%
Spring.....70¢@100¢@10%
Shutter.....50¢@50¢@10%
Square Neck.....75¢@75¢@10%
Square.....70¢@100¢@10%
Ives' Patent Door.....55%
Ives' Wrought Metal.....45%

Expansion—

F. H. Evans' Crescent.....40¢@60%
Richards Mfg. Co.....55¢@10%
Steward & Romain Mfg. Co., Style No. 13, Double.....60%
Style No. 1, Single.....60%
Style No. 100, Dbl. Jaw, Single.....55%
Lag Screw.....65%

Plow and Stove—

Plow.....65¢@67¢
Stove.....85¢@85¢

Tire—

Common Iron.....80¢@18¢
Norway Iron.....80¢@80¢
American Screw Co., Norway Phila., list Oct. 16, '84.....80%
Eagle Phila., list Oct. 16, '84.....82%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co., Norway Phila., list Oct. 16, '84.....80%
Eagle Phila., list Oct. 16, '84.....82%
Eclipse, list Dec. 28, '99.....80%
Russell, Burdall & Ward Bolt & Nut Co., Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct. 16, '84.....80%
Eagle.....82%
Shelton Co., Tiger Brand, list Dec. 28, '99.....80%
Phila., Eagle, list Oct. 16, 1884.....82%
Upson Nut Co., Tire Bolts.....72%
Tire Bolts.....72%

Borers, Bung—

Borers Bung, Ring, with Handle:
Inch.....1 1/4 1 1/2 1 3/4 2
Per doz.....\$4.80 5.60 6.40 8.00
Inch.....2 1/4 2 1/2 2 3/4 3
Per doz.....\$8.65 11.50
Enterprise Mfg. Co., No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.50 each.....25%

Boxes, Mitre—

C. E. Jennings & Co.....25%
Langdon, New Langdon and Langdon Improved, 20¢@10%; Langdon Acme.....15¢@10%
Perfection.....40%
Seavey.....45%

Braces—

Common Ball, American.....\$1.50
Barber's.....50¢@100¢@10%
Fray's Genuine Spofford's.....60%
Fray's No. 61, 166, 206, 614.....50%
C. E. Jennings & Co.....50¢@5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat. 50%
Millers Falls Drill Braces.....25¢@10%
P., S. & W. Co., Peck's Pat.....60¢@10%

Brackets—

Wrought Steel.....75¢@100¢@10%
Bradley Metal Clasp.....80¢@100¢@10%
Griffin Pressed Steel.....75¢@75¢@10%
Griffin's Folding Brackets.....70¢@10%
Taplin Victor Handy Egg Beater Bracket.....1/2 doz., \$1.50

Bright Wire Goods—

See Wire and Wire Goods.

Broilers—

Kilbourne Mfg. Co.....75¢@20%
Wire Goods Co.....75%

Buckets, Galvanized—

Mfr's list, price per gross:
Quart.....10 12 15
Water, Reg.....26.85 29.50 33.50
Water, Hvy.....43.35 48.00 52.00
Fire, Rd. Btm. 32.00 34.65 38.65
Well.....37.35 41.35 45.35

Bull Rings—See Rings, Bull.

Butts—

Wrought, High List, Oct. 26, '06.....55%
Cast Brass, Tiebout's.....40%

Cast Iron—

Fast Joint, Broad.....40¢@100¢
Fast Joint, Narrow.....40¢@100¢
Loose Pin.....70¢@100¢
Loose Pin.....70¢@100¢
Mayer's Hinges.....70¢@70¢
Parliament Butts.....70¢@70¢

Wrought Steel—

Bright:
Light Narrow, Light Reversible.....70¢@5%
Reversible and Broad.....70¢@5%
Loose Joint, Narrow, Light Inside Blind, &c.....70%
Back Flaps, Table Chest.....65%
Japanned:
Light Narrow, Loose Pin.....40¢@5%
Broad.....40¢@5%
Steeple Tipped.....70%
Ball Tipped.....70%

Extra, 100%

Cages, Bird—

Hendryx Brass: Series 3000, 5000,
1100, net list; 1200, 15%; 200, 300,
900 30%
Hendryx Bronze: Series 700, 800, 3000 30%
Hendryx Enamelled 35%

Calipers—See Compasses.**Calks, Toe and Heel—**

Blunt, 1 prong, per lb. 1.15¢
Sharp, 1 prong, per lb. 1.45¢
Burke's, Blunt, 4¢ 4½¢; Sharp, 4½¢ 5½¢
Lautier, Blunt, 4¢ 4½¢; Sharp, 4½¢ 5½¢
Perkins', Blunt, 3½¢; Sharp, 4.15¢

Can Openers—

See Openers, Can.

Caps, Percussion—

Eley's E. B. 52¢ 55¢
G. D. per M 34¢ 35¢
F. L. per M 36¢ 37¢
G. E. per M 38¢ 39¢
Muskett per M 62¢ 63¢

Primers—

Berdan Primers, \$2 per M. 20¢
Primer Shells and Bullets. 15¢ 10¢
All other primers per M. \$1.52¢ 1.60

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

Blank Cartridges:
32 C. F. 10¢ 5¢
38 C. F. 10¢ 5¢
22 cal. Rim. 10¢ 5¢
32 cal. Rim. 10¢ 5¢
B. B. Caps, Con. Ball, Surgd. \$1.90
B. B. Caps, Round Ball. \$1.49
Central Fire. 25¢
Target and Sporting Rifle. 15¢ 5¢
Primed Shells and Bullets. 15¢ 10¢
Rim Fire, Sporting. 50¢
Rim Fire, Military. 15¢ 5¢

Casters—

Bed 65¢ 10¢ 70¢
Plate 60¢ 5¢ 60¢ 10¢
Philadelphia 70¢ 1¢ 75¢
Acme Ball Bearing 35¢
Gem (Roller Bearing) 70¢ 10¢ 10¢ 5¢
Steel Gem 50¢
Standard Ball Bearing 45¢
Yale (Double Wheel) low list. 40¢ 10¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Proof Coil—

American Coil, Straight Link:
3-16 ¼ 5-16 ¾ 7-16 ½ 5¢
8-16 5-35 4-30 3-25 3-25 3-55
¾ ¾ 1 1 ½ to 1 ½ inch.
German Coil. 60¢ 65¢
German Pattern Coil:
6-0 to 1. 70¢ 5¢ 70¢ 10¢
2 and 3. 60¢ 10¢ 10¢ 60¢ 10¢ 5¢
4, 5 and 6. 50¢ 10¢ 50¢ 10¢ 5¢

Halter—

Halter Chains. 60¢ 5¢ 60¢ 10¢
German Pattern Halter Chains.
List July 24, '97. 60¢ 10¢ 5¢ 70¢
Covert Mfg. Co. 35¢ 5¢

Cow Ties—

See Halters and Ties.

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½-6-3, Straight, with ring. \$28.00
6½-6-2, Straight, with ring. \$29.00
6½-8-2, Straight, with ring. \$32.00
6½-10-2, Straight, with ring. \$37.00

NOTE.—Add 2¢ per pair for Hooks
Twist Traces: add per pair for Nos. 2
and 3, 2¢; No. 1, 3¢; No. 0, 4¢ to price of
Straight Link.

Eastern Standard Traces, Wag-
on Chain, etc. 60¢ 10¢ 60¢ 10¢ 5¢
Miscellaneous:
Jack Chain, list July 10, '93:
Iron 60¢ 10¢ 7½¢
Brass 65¢
Safety and Plumbers' Chain. 75¢
Gal. Pump Chain. 4½¢ 5¢
Bridgeport Chain Co.:
Triumph Halter and Coll. 35¢ 40¢
Triumph Dog 50¢ 10¢ 60¢
Brown Halter and Coll. 45¢ 50¢ 55¢
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stal-
lion 40¢
Oneida Community:
American Halter, Dog and Kennel
Chains 35¢ 40¢ 45¢
Niagara Dog Leads and Kennel
Chains 45¢ 50¢ 55¢
Wire Goods Co.:
Dog Chain 70¢
Universal Dbl.-Jointed Chain 50¢

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain. 60¢
Pullman:
Bronze Chain, 60%; Steel Chain.
Coppered 60¢ 10¢
Sash Chain Attachments, per set. 8¢
Alumino Sash Ribbon, per 100
ft. \$2.00 \$3.00
Sash Ribbon Attachments, per set. 8¢

Chalk— (From Jobbers.)

Carpenters' Blue. gro. 30¢
Carpenters' Red. gro. 15¢
Carpenters' White. gro. 15¢

Checks, Door—

Birdsley's 45¢
Pullman, per gro. \$54.00
Russwin 37½¢

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools. 55¢
Youth's Chests, with Tools. 50¢
Gentlemen's Chests, with Tools. 30¢
Farmers', Carpenters', etc., Chests,
with Tools 20¢
Machinists' and Pipe Fitters'
Chests, Empty. 45¢
Tool Cabinets. 45¢
C. E. Jennings & Co.'s Machinists'
Tool Chests. 7½¢

Chisels—

Socket Framing and Firmer
Standard List. 80¢ 10¢ 10¢
Buck Bros. 30¢
C. E. Jennings & Co.:
Socket Firmer No. 10. 25¢ 7½¢
Socket Framing No. 15. 25¢ 7½¢
Swan's 66¢ 70¢
L. & I. J. White & Co. 30¢ 30¢ 5¢

Tanged—

Tanged Firmers. 30¢ 45¢ 35¢
Buck Bros. 30¢
C. E. Jennings & Co. Nos. 191, 181, 25.
L. & I. J. White Co. 25¢ 5¢

Cold—

Id.
Cold Chisels, good quality. 13¢ 15¢
Cold Chisels, fair quality. 11¢ 12¢
Cold Chisels, ordinary. 9¢ 10¢

Chucks—

Almond Drill Chucks. 35¢
Almond Turret Six-Tool Chuck. 40¢
Beach Pat, each \$8.00. 35¢ 5¢
Empire 25¢
Blacksmiths' 35¢
Jacobs' Drill Chucks. 35¢
Pratt's Positive Drive. 25¢
Skinner Patent Chucks:
Independent Lathe Chucks. 35¢
Universal Reversible Jaws. 35¢
Combination Reversible Jaws. 35¢
Drill Chucks, New Model. 25¢
Standard. 45%; Skinner Pat. 25¢
25%; Positive Drive. 40¢
Planer Chucks. 35¢
Face Plate Jaws. 35¢
Standard Tool Co.:
Improved Drill Chuck. 45¢
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6,
7, 8 and 17, 40%; No. 21. 35¢
Scroll Combinations, Nos. 83 and
84 30¢
Geared Scroll, Nos. 33, 34 and 35, 25.
Independent Iron, Nos. 18 and 318, 35.
Independent Steel, No. 64. 25¢
Union Drill, Nos. 100, 101, 102,
103, 104. 35¢
Union Czar Drill. 25¢
Universal, 11, 12, 16, 17, 13, 14, 15, 40.
Universal No. 42. 35¢
Iron Face Plate Jaws, Nos. 28, 30,
48 and 50. 30¢
Steel Face Plate Jaws, Nos. 70 and
72 30¢
Westcott Patent Chucks:
Lathe Chucks. 50¢
Little Giant Auxiliary Drill. 50¢
Little Giant Double Grip Drill. 50¢
Little Giant Drill, Improved. 50¢
Oneida Drill. 50¢
Scroll Combination Lathe. 50¢
Whitaker Mfg. Co.:
National Drill. 25¢

Clamps—

Adjustable Hammer. 20¢ 20¢ 5¢
Carriage Makers', P. S. & W.
Co. 50¢ 10¢
Bealy, Parallel. 35¢ 40¢
Myers' Hay Rack. 45¢
Lineman's Swedish Nevertum. 45¢
Wood Workers' Hammers. 40¢ 10¢
Saw Clamps, see Vises, Saw Filer's

Cleaners, Drain,

Ivan's Champion, Adjustable. 50¢
Ivan's Champion, Stationary. 40¢

Sidewalk—

Star Socket. All Steel. 30 doz. \$4.05 net
Star Shank. All Steel. 30 doz. \$3.24 net
W. & C. Shank. All Steel, 30 doz.,
7½ in., \$3.00; 8 in., \$3.25.

Cleavers, Butchers—

Foster Bros. 30¢
Fayette R. Plumb. 30¢
L. & I. J. White Co. 30¢

Clippers, Horse and

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each. \$10.75
20th Century Horse, each. \$5.00
Lightning Belt Horse, each. \$15.00
Chicago Belt Horse, each. \$20.00
Stewart's Enclosed Gear
Horse, each. \$6.75
Stewart's Patent Sheep Shear-
ing Machine, each. \$12.75
Stewart Enclosed Gear Shear-
ing Machine, No. 8, each. \$9.75

Clips, Axle—

Regular Styles, list July 1, '05.
80¢ 80¢ 10¢

Cloth and Netting, wire

—See Wire, &c.

Cocks, Brass—

Hardware Hat:
Plain Bibbs, Globe, Kerosene,
Racking, Liquor, Bottling,
&c 75¢
Compression Bibbs. 70¢

Coffee Mills—

See Mills, Coffee.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
Son's list. 40¢
Leather, Walter B. Stevens & Son's
list. 40¢

Compasses, Dividers, &c.

Ordinary Goods. 70¢ 10¢ 75¢

Conductor Pipe,—

L. C. L. to Dealers:
Gal. Steel. Charcoal.
Northeastern. 70¢ 10¢ 50¢ 10¢ 7½¢
Eastern. 75¢ 50¢ 10¢ 7½¢
Pittsburgh. 75¢ 10¢ 45¢ 60¢
Central. 75¢ 10¢ 60¢
Northeastern. 75¢ 10¢ 60¢
Western. 70¢ 12½¢ 50¢ 12½¢
Tennessee. 70¢ 10¢ 50¢ 12½¢
Southern. 70¢ 50¢ 12½¢
Southeastern. 70¢ 50¢ 5¢
Terms, 60 days; 2½ cash 10 days. Fac-
tory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:
Gal. 2 3 4 6 8
Galvanized, ea. \$1.85 \$2.00 \$2.25 \$2.90 \$3.90
Galvanized, Lined, side handles,
Gal. 4 6 8
Each \$1.95 \$2.15 \$2.40 \$3.30 \$4.15
White Enamelled. 10¢
Agate Lined. 10¢

Coppers' Tools—

See Tools, Coppers'.

Coppers, Soldering—

Soldering Coppers, 3 lb. to pair
and heavier, 20¢; lighter
than 3 lb. to pair. 22¢

Cord—

Braided, Drab. lb. 35¢
Braided, White, Com., Nos. 8
to 12, 20¢; No. 7, 20½¢; No. 6,
21½¢. In lots of 12 doz. or
over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18, 37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India. lb., 11¢ 11½¢
Cotton Sash Cord, Twisted. 18¢ 20¢
Patent Russia. lb., 20¢
Cable Laid Russia. lb., 21¢
India Hemp, Br'd'd. lb., 21¢
India Hemp, Twisted. lb., 13¢ 14¢
Patent India, Twisted. lb., 17¢
Pearl Braided, cotton, No. 6, 3 lb.
27½¢; No. 7, 26½¢; Nos. 8 to 12, 25¢
Eddystone, Braided, Nos. 8 to 12,
25¢; 7, 26½¢; 6, 27½¢
Harmony Cable Laid Italian, Nos. 7
to 10. lb. 22¢
Pullman:
Wire Sash Cord. 10¢
Sash Cord Attachments, per 100. \$2.00
Samson, Nos. 8 to 12:
Braided, 3 lb., Drab Cotton,
50¢; Italian Hemp, 40¢ @
50¢; Linen, 65¢; White Cot-
ton, 50¢; Spot Cord. 50¢
Massachusetts, White. lb. 40¢
Massachusetts, Drab. lb. 45¢
Phoenix White, Nos. 8 to 12. 27¢
Silver Lake, per lb.:
A, Drab, 45¢; B, White, 40¢;
B, Drab, 40¢; B, White, 35¢;
Italian Hemp, 40¢; Linen. 57½¢
See also Chain and Ribbon.

Wire, Picture—

Full Length. 90¢ @
Short Length. 90¢ 20¢ @
Hendryx Standard Wire Picture Cord,
old list. 55¢ 10¢
Turner & Stanton Co. Wire Picture
Cord. 90¢

Cradles—

Grain 50%

Crayons—

White Round Crayons, Cases, 100
gro. \$3.00, \$3.50 and \$9.00 accord-
ing to grade.

Zelnicke's Lumber: 30 gro.
White and Purple, Indelible. \$7.50
Blue, Red, Green, Yellow and
Terra Cotta, 65¢; Black. \$4.50
Giant Lumber, 5¼ in. x 15-16 in.
round, all colors, \$12.00; Indel-
ible, \$14.00; Black. \$10.00
Genuine Soapstone, Metal Workers',
5 in. x ¼ in. Round, \$2.50; 5 in. x
¼ in. Square, \$1.75; 5 x ½ x 3-16,
\$2.50; 5 x 1¼ x 3-16. \$3.00
Suremark, Black, \$2.25; Blue, Red
and Yellow. \$2.50

Crooks, Shepherds—

Fort Madison, per doz., Heavy, \$5.50;
Light \$5.00

Crow Bars—See Bars, Crow.**Cultivators—**

Victor Garden. 50%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847, 30 doz. \$3.50
Star, Eagle, Rogers & Hamilton
and Anchor. 30 doz. \$3.00
Wm. Rogers & Son. 30 doz. \$2.50

Cutters—

H. H. Mayhew Co. 40%
Red Devil. 60%
B. Mfg. Co. 40%
Woodward. 50%

Meat and Food—

American 30%
Nos. 401 402 403 404 405 406 407
Each \$5 \$7 \$10 \$12 \$25 \$50 \$60
Enterprise:
No. 10 12 22 32
Each \$2 \$3 \$2.75 \$4.50 \$6 25¢ 25¢ 7½¢
No. 202, \$1.50. 10¢ 7½¢
P. S. & W. Co.:
Dixon's 30 doz. 33½¢
Nos. 1 2 3 4
Ideal \$14.00 \$17.00 \$19.00 \$30.00
Hales 40¢ 40¢ 5¢
Little Giant. 30 doz. 40¢ 50¢
Nos. 305 310 312 320 322
\$35.00 \$48.00 \$44.00 \$72.00 \$68.00
New Triumph No. 605, 30 doz. \$24.00
Russwin Food, No. 1, \$24.00; No. 2,
\$27.00. 45¢ 10¢ 10¢
Enterprise Beef Chavers. 25¢ 20¢

Slaw and Kraut—

Henry Diston & Sons:
Slaw and Kraut Cutters. 35%
Corn Graters. 30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife. 30 doz. \$7.75
Combined Slaw Cutter and Corn
Grater 30 doz. \$4.00

Tobacco—

All Iron, Cheap. doz. \$4.25¢ 4.50
Enterprise 25¢ 30¢
National, 30 doz., No. 1, \$21; No. 2,
\$18 40%

Diggers, Post Hole, &c—

Diston's:
Rapid, 30 doz. \$24.00 25%
Samson, 30 doz. \$34.00 25%
Ivan's Improved Post Hole Auger. 40%
Vaughan Pattern Post Hole Augers,
30 doz. \$7.00
Perfection Post Hole Diggers, 30
Split Handle Post Hole Diggers,
30 doz. \$10.00
Hercules Pattern, 30 doz. \$10.00
Kohler's, 30 doz., Universal, \$15.00;
Little Giant, \$12.00; Hercules,
\$10.00; Invincible, \$9.00; Rival,
\$8.50; Pioneer. \$7.50
Never-Break Post Hole Diggers, 30
doz. \$24.00 60%

Dividers—See Compasses.**Drawing Knives—**

See Knives, Drawing.

Dressers Emery Wheel—

Sterling Emery Wheel Dressers. 35%
Sterling Wheel Dresser Cutters. 35%

Drills and Drill Stocks—

Blacksmith's Common Drilling
Machines \$1.50¢ 1.75
Brecht, Millers Falls. 15¢ 10¢
Brecht, P. S. & W. 33½¢
Goodell Automatic Drills 50¢ 10¢ 60¢ 10¢
Millers Falls Automatic Drills, 33½¢ 10¢
Ratchet, Curtis & Curtis. 25¢
Ratchet, Parker's. 40¢
Ratchet, Weston's. 40¢
Ratchet, Weston's, Style H Im-
proved. 40¢
Ratchet, No. 012. 40¢
Ratchet, Celebrated. 40¢
Ratchet, Whitney's, P. S. & W. 50¢ 5¢
Whitney's Hand Drill, No. 1, \$10.00.
Adjustable, No. 10, \$12.00. 33½¢

Twist Drills—

Bit Stock. 70¢ 70¢ 5¢
Taper and Straight Shank. 60¢ 10¢ 70¢

Drivers, Screw—

Screw Driver Bits, per doz. 45¢ 50¢
Balsey's Screw Holder and Driver, 30
doz., 2½ in., \$6; 4 in., \$7.50; 6 in.,
\$9
Buck Bros. Screw Driver Bits. 50%
Champion 50%
Diston's 70%
Pray's Hol. H'dle Sets, No. 3, \$12.50.
Ford's Brace Screw Drivers. 40¢ 10¢
Gay's Double Action Ratchet. 35%
Goodell's Auto. 65¢ 65¢ 10¢
Mayhew's Black Handle. 40%
Mayhew's Monarch. 40%
Millers Falls, Nos. 20 and 21, 25¢ 10¢
Millers Falls, Nos. 11, 12, 41, 42, 15¢ 10¢
Smith & Hemenway Co. Never-
turn, 66%; Elmora, 66%. 30¢ 10¢
Swan's:
Nos. 7565 to 7567. No. 7540.
40¢ 10¢

Eave Trough, Galvanized—

Territory. Gal. Steel. Charcoal.
Northeastern. 75¢ 10¢ 5¢ 60¢ 20¢
Eastern. 80¢ 2½¢ 60¢ 20¢
Pittsburgh. 80¢ 20¢ 65¢ 10¢
Central. 80¢ 10¢ 10¢ 2½¢ 65¢ 10¢
Northeastern. 80¢ 10¢ 10¢ 65¢ 10¢
Western. 80¢ 10¢ 60¢ 10¢ 5¢
Tennessee. 80¢ 60¢ 10¢ 5¢
Southern. 80¢ 60¢ 10¢ 5¢
Southeastern. 75¢ 10¢ 2½¢ 60¢ 5¢

Terms.—2½ for cash. Factory shipments
generally delivered.
Note.—Lower prices are made in some
sections.

See also Conductor Pipe and Elbows.**Elbows and Shoes—**

Factory shipments, all territories:
Galv. Steel and Galv. C. I.
Standard Gauge. 85¢ 85¢ 10¢
No. 20. 50%
No. 21. 25%
No. 22. 10%

Elbows, Stove Pipe—

Edwards, Standard Blue. 40¢ 10¢ 10¢
Edwards, Royal Blue. 40¢ 10¢ 10¢
Reeves, Dover, one piece. 40¢ 10¢

Emery, Turkish—

4 to 54 to
46: 220: Flour.
Kegs lb. 5¢ 5½¢ 3¼¢
¼ Kegs lb. 5¼¢ 5½¢ 3¼¢
1¼ Kegs lb. 5¼¢ 6¢ 4¢
10-lb. cans,
10 in case. 6¼¢ 7¢ 6¢
10-lb. cans, less
than 10 10¢ 10¢ 8¢
Less quantity, 10¢ 10¢ 8¢
NOTE.—In lots 1 to 3 tons a discount of
10¢ is given.

Extractors, Lemon Juice—

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's 50¢@10%
Walling's 40¢@10%
Upson's Patent 10%

Cord and Weight—

Ives and Titan 33½%

Corrugated—

Acme Corrugated Fasteners 70%

Faucets—

Cork Lined 50¢@10¢@60%

Metallic Key, Leather Lined, 60¢@10¢@70%

Red Cedar 70¢@10¢@75%

B. & L. B. Co. 60¢@10%

Star 60¢@10%

West Lock 50¢@10%

John Sommer's Peerless Tin Key 40%

John Sommer's Victor Mtl. Key 50¢@10%

John Sommer's Duplex Metal Key 60%

John Sommer's Diamond Lock 40%

John Sommer's L.X.L. Cork Lined 50%

John Sommer's Reliable Cork Lined 50¢@10%

John Sommer's Chicago Cork Lined 60%

John Sommer's O. K. Cork Lined 50%

John Sommer's No Brand, Cedar 50%

John Sommer's Perfection, Cedar 40%

Self Measuring: 40¢@10%

Enterprise, ½ doz. \$36.00 40¢@10%

Lane's, ½ doz. \$36.00 40¢@10%

National Measuring, ½ doz. \$36.40@10%

Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List Nov. 1, 1899.

Best Brands 70¢@10¢@75¢@10%

Standard Brands 75¢@10¢@80%

Lower Grade 75¢@10¢@80¢@10%

Imported—

Stubs' Tapers, Stubs' list, July 24, '97 33½¢@10%

Fixtures, Fire Door—

Allith Underwriters' Approved 50%

Richards Mfg. Co. \$2.75

Universal, No. 103; Special, No. 104 \$2.75

Fusible Links, No. 96 50%

Expansion Bolts, No. 197 60¢@10%

Grindstone—

Net Prices: 15 17 19 21

Per doz. \$3.60 3.85 4.15 4.65

P. S. & W. Co. 25%

Reading Hardware Co. 60%

Fodder Squeezers—

See Compressors.

Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1903, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato 60¢@10%

Victor, Hay 60¢@15¢@21%

Victor, Manure 66%

Victor, Header 65%

Champion, Hay 66%

Champion, Header 66%

Champion, Manure 66%

Columbia, Hay 60¢@20%

Columbia, Manure 70%

Columbia, Spading 70¢@12%

Hawkeye Wood Barley 40%

W. & C. Potato Digger 60¢@10%

Acme Hay 60¢@10%

Acme Manure, 4 time 60¢@10%

Dakota Header 60¢@20%

Jackson Steel Barley 60¢@20%

Kansas Header 65%

W. & C. Favorite Wood Barley 40%

Plated.—See Spoons.

Frames— Wood Saw—

White, 8'g't Bar, per doz. 75¢@80¢

Red, 8'g't Bar, per doz. \$1.00@1.25

Red, Dbl. Brace, per doz. \$1.40@1.50

Freezers, Ice Cream—

Qt. 1 2 3 4 6

Each \$1.25 \$1.60 \$1.90 \$2.20 \$2.80

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.**Fuse—**

Per 1000 Feet.

Hemp \$2.75

Cotton 3.80

Waterproof Spl. Taped 3.65

Waterproof Dbl. Taped 4.40

Waterproof Tpl. Taped 5.15

10¢@15¢@25%

20¢@25¢@35%

30¢@35¢@45%

40¢@45¢@55%

50¢@55¢@65%

60¢@65¢@75%

70¢@75¢@85%

80¢@85¢@95%

90¢@95¢@1.00

1.00@1.05@1.10

1.10@1.15@1.20

1.20@1.25@1.30

1.30@1.35@1.40

1.40@1.45@1.50

1.50@1.55@1.60

1.60@1.65@1.70

1.70@1.75@1.80

1.80@1.85@1.90

1.90@1.95@2.00

2.00@2.05@2.10

2.10@2.15@2.20

2.20@2.25@2.30

2.30@2.35@2.40

2.40@2.45@2.50

2.50@2.55@2.60

2.60@2.65@2.70

2.70@2.75@2.80

2.80@2.85@2.90

2.90@2.95@3.00

3.00@3.05@3.10

3.10@3.15@3.20

3.20@3.25@3.30

3.30@3.35@3.40

3.40@3.45@3.50

3.50@3.55@3.60

3.60@3.65@3.70

3.70@3.75@3.80

3.80@3.85@3.90

3.90@3.95@4.00

4.00@4.05@4.10

4.10@4.15@4.20

4.20@4.25@4.30

4.30@4.35@4.40

4.40@4.45@4.50

4.50@4.55@4.60

4.60@4.65@4.70

4.70@4.75@4.80

4.80@4.85@4.90

4.90@4.95@5.00

5.00@5.05@5.10

5.10@5.15@5.20

5.20@5.25@5.30

5.30@5.35@5.40

5.40@5.45@5.50

5.50@5.55@5.60

5.60@5.65@5.70

5.70@5.75@5.80

5.80@5.85@5.90

5.90@5.95@6.00

6.00@6.05@6.10

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6.50@6.55@6.60

6.60@6.65@6.70

6.70@6.75@6.80

6.80@6.85@6.90

6.90@6.95@7.00

7.00@7.05@7.10

7.10@7.15@7.20

7.20@7.25@7.30

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7.40@7.45@7.50

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7.90@7.95@8.00

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8.70@8.75@8.80

8.80@8.85@8.90

8.90@8.95@9.00

9.00@9.05@9.10

9.10@9.15@9.20

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10.40@10.45@10.50

10.50@10.55@10.60

10.60@10.65@10.70

10.70@10.75@10.80

10.80@10.85@10.90

10.90@10.95@11.00

11.00@11.05@11.10

11.10@11.15@11.20

11.20@11.25@11.30

11.30@11.35@11.40

11.40@11.45@11.50

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14.60@14.65@14.70

14.70@14.75@14.80

14.80@14.85@14.90

14.90@14.95@15.00

15.00@15.05@15.10

15.10@15.15@15.20

15.20@15.25@15.30

15.30@15.35@15.40

15.40@15.45@15.50

15.50@15.55@15.60

15.60@15

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50
Star Double Bit.....\$3.20
Ft. Madison Cotton Hoe.....\$3.10
Ft. Madison Crescent Cultivator Hoe.....\$3.10
doz.....70¢10¢
Ft. Madison Mattock Hoes:
Regular Weight.....doz. 40¢5¢
Junior Size.....doz. 41.00
Ft. Madison Sprouting Hoe, doz.....60¢10¢
Ft. Madison Dixie Tobacco Hoe.....75¢10¢7½¢
Kretzinger's Cut Easy.....70¢10¢
Warren Hoe.....75¢10¢
W. & C. Ivanhoe.....75¢10¢
B. B. 6 in. Cultivator Hoe.....\$3.40
B. B. 6½ in. Cultivator Hoe.....\$3.50
Acme Weeding.....doz. net, \$1.35
W. & C. L'ning Shuffle Hoe, doz.\$5.25

Hoisting Apparatus—

See Machines, Hoisting.

Holders—Bit—

Angular, doz. \$21.00.....45¢10¢
Door—
Bardsley's, Iron, 40%; Brass and Bronze.....25¢
Empire.....50¢
Pullman.....25¢
Richards Mfg. Co., No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip.....50¢
Superior.....33½¢
File and Tool—
Nicholson File Holders and File Handles.....33½¢40¢

Fruit Jar—

Triumph Fruit Jar Holder, doz. gross, \$18.00; doz. \$2.00
Fernald Double Trace Holder, doz. pairs.....\$1.25
Dash Rein Holder, doz. pairs, \$1.25

Trace and Rein—

Pike Mfg. Co., Belgian and Swatw, 50%; German.....33½¢
Hooks—Cast Iron—

Bird Cage, Reading.....40¢
Clothes Line, Reading List.....40¢
Coat and Hat, Reading.....60¢5¢
Coat and Hat, Wrightsville.....60¢5¢
Harness, Reading List.....40¢
Wire—
Belt, Nos. 1 to 15.....75¢10¢80¢
Wire C. & H. Hooks.....80¢80¢10¢
Bradley Metal Clasp Wire, Coat and Hat, 70¢10¢; Ceiling.....70¢10¢
Columbian Hdw. Co., Gem.....70¢5¢
Parker Wire Goods Co., King.....70¢10¢
Wire Goods Co.:
Acme, 6½10%; Chief, 70%; Crown, 75%; Czar, 65%; V. Brace, 75%; Czar Harness, 50¢10¢.

Wrought Iron—

Box, 6 in., per doz., \$0.90; 8 in., \$1.15.
Cotton.....doz. \$1.25@1.50
Wrought Staples, Hooks, &c.—
See Wrought Goods.
Miscellaneous—
Hooks, Bench, see Staps, Bench.
Rush, Light, doz., \$6.20; Medium, \$6.75; Heavy, \$7.65
Grass, best, all sizes, per doz. \$2.75@3.00
Grass, common grades, all sizes, per doz. \$1.25@1.50
Whiffletree.....lb. 3¢@6¢
Hooks and Eyes:
Brass.....60¢@60¢10¢
Malleable Iron.....70¢@70¢10¢
Covert Mfg. Co. Gate and Scuttle Hooks.....40¢
Ft. Madison Cut-Easy Corn Hooks, doz. \$3.25 net
Turner & Stanton Co., Cup and Shoulder.....85¢10¢
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See Nails, Horse.
Horseshoes—
See Shoes, Horses.
Hose, Rubber—
Garden Hose, ¾-in.:
Competition.....ft. 6¢6½¢
3-ply Guaranteed.....ft. 8¢10¢
4-ply Guaranteed.....ft. 9½¢12¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8¢10¢
Fair Quality.....ft. 10¢11¢

Irons—Sad—

From 4 to 10.....lb. 2½¢@2½¢
B. B. Sad Irons.....lb. 3½¢@3½¢
Mrs. Potts', cents per set:
Nos. 50 55 60 65
Jap'd Tops.....83 80 91 91
Tin'd Tops.....88 85 98 98
New England Pressing, lb. 3¼¢14¢

Bar and Corner—

Richards Mfg. Co., Bar, 60¢10%; Corner.....60¢
Pinkish Irons.....doz. 60¢@60¢
Irons, Soldering
See Coppers.
Jacks, Wagons—
Covert Mfg. Co.:
Auto Screw.....30¢2½¢; Steel, 45¢
Lockport.....50¢
Lane's Steel.....30¢5¢
Richards' Tiger Steel, No. 130.....50¢10¢
Smith & Hemenway Co.'s.....25¢

Ladder—

Richards Mfg. Co., Ladder Jacks.....50¢

Kettles—

Brass, Spun, Plain.....20¢125¢
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros' Butcher, &c.....30¢
Wilkinson Shear & Cutlery Co.....60¢

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60¢
Withington Acme, doz. \$2.65;
Dent, \$2.75; Adj. Serrated, \$2.20;
Serrated, \$2.10; Yankee No. 1, \$1.50;
Yankee No. 2, \$1.15.

Drawing—

Standard List.....80¢10¢—
C. E. Jennings & Co., Nos. 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Jennings & Griffin, Nos. 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998,

Pinking Irons—

See Irons, Pinking.

Pins, Escutcheon—

Brass 50¢@50¢@10¢
 Iron, list Nov. 11, '85. 60¢@60¢@10¢

Pipe, Cast Iron Soil—

Standard, 2-6 in. 70¢@—
 Extra Heavy, 2-6 in. 75¢@10¢@—
 Fittings, Standard and Heavy,
 80¢@10¢@80¢@10¢@10¢

Pipe, Merchant—

Consumers, Carloads,

Steel. Iron.

Blk. Galv. Blk. Galv.

	%	%	%
1/2 and 3/4 in. 66	50	64	
3/4 in. 68	54	66	52
1 in. 70	58	68	56
1 1/4 to 6 in. 74	64	72	62
7 to 12 in. 71	56	69	54

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 3
 to 2 1/2 in., f.o.b. factory: ..
 First-class 87¢
 Second-class 90¢

Pipe, Stove—

	Per 100 joints.	C. L.	L. C. L.
Edwards' Nested:			
5 in., Standard Blue.....	\$6.25	\$7.25	
6 in., Standard Blue.....	6.75	7.75	
7 in., Standard Blue.....	7.75	8.75	
5 in., Royal Blue.....	7.00	8.00	
6 in., Royal Blue.....	7.50	8.50	
7 in., Royal Blue.....	8.50	9.50	
Wheeler Corrugating Co.'s Nested:			
5 in., Uniform Color.....	\$6.15	\$7.15	
6 in., Uniform Color.....	6.65	7.65	
7 in., Uniform Color.....	7.65	8.65	

Planes and Plane Irons—**Wood Planes—**

Bench, first qual. 30¢@30¢@10¢
 Bench, second qual. 40¢@40¢@10¢
 Molding 25¢@25¢@10¢
 Chapin-Stephens Co.:
 Bench, First Quality..... 30¢
 Bench, Second Quality..... 40¢
 Molding and Miscellaneous..... 25¢
 Toy and German..... 30¢
 Union 60¢

Iron Planes—

Chaplin's Iron Planes..... 50¢@10¢
 Union 60¢

Plane Irons—

Wood Bench Plane Irons, list
 Dec. 12, '06..... 25¢
 Buck Bros..... 30¢
 Chapin-Stephens Co..... 25¢
 Union 50¢
 L. & I. J. White..... 20¢@25¢@25¢

Planters, Corn, Hand—

Kohler's Eclipse..... 3 doz. \$8.00

Plates—

Fellow 10.3¢@4¢

Pliers and Nippers—

Button Pliers..... 75¢@5¢@10¢@5¢
 Gas Burners, per doz., 3 in., \$1.25
 @1.30; 6 in., \$1.45 \$1.50.
 Gas Pipe, 7 8 10 12 in.
 \$2.00 \$2.25 \$2.75 \$3.50
 Acme Nippers..... 50¢@5¢
 Cronk & Carrier Mfg. Co.:
 American Button..... 80¢
 Improved Button..... 75¢@10¢
 Cronk's 60¢
 No. 80 Linemen's..... 50¢
 Stub's Pattern..... 45¢
 Combination and others..... 35¢
 Heller's Farriers' Nippers, Pincers
 and Tools..... 40¢@5¢@10¢@5¢
 P. S. & W. Tinnors' Cutting Nip-
 pers 40¢
 Swedish Side, End and Diagonal
 Cutting Pliers..... 50¢
 Utica Drop Forge & Tool Co.:
 Pliers and Nippers, all kinds..... 40¢

Plumbs and Levels—

Chapin-Stephens Co.:
 Plumbs and Levels..... 30¢@30¢@10¢
 Chapin's Imp. Brass Cor. 40¢@40¢@10¢
 Pocket Levels..... 30¢@30¢@10¢
 Extension Sights..... 30¢@30¢@10¢
 Machinists' Levels..... 40¢@40¢@10¢
 Diston's Plumb and Levels..... 60¢@10¢
 Diston's Pocket Levels..... 60¢@10¢
 Stanley's Dux..... 35¢
 Woods' Extension..... 35¢
 Points, Glaziers'—
 Bulk and 1-lb. papers..... 9¢
 1/2-lb. papers..... 10¢
 1/4-lb. papers..... 10¢
 Police Goods—
 Manufacturers' Lists..... 25¢@25¢@5¢
 Tower's 25¢
 Polish—Metal, Etc—
 Prestoline Liquid, No. 1 (1/2 pt.),
 doz., \$3.00; No. 2 (1 gal.), \$5.00..... 40¢
 Prestoline Paste..... 60¢

George William Hoffman:
 U. S. Metal Polish Paste, 3 oz.
 boxes, 3 doz. 50¢; 3 doz. \$1.50;
 1/2 lb boxes, 3 doz. \$1.25; 1 lb
 boxes, 3 doz. \$2.25.
 U. S. Liquid, 8 oz. cans, 3 doz.,
 \$1.25.
 Barkeepers' Friend Metal Polish, 3
 doz., \$1.75.

Stove—

Black Eagle Benzine Paste, 5 lb cans,
 10 lb 10¢
 Black Eagle, Liquid, 1/2 pt. cans,
 10 doz. 75¢
 Black Jack Paste, 1/2 lb cans, 3 doz. \$3.00
 Black Kid Paste, 5 lb cans, each, \$0.65
 Ladd's Black Beauty Liquid, per
 100 tins..... \$6.75
 Joseph Dixon, 3/4 gr. \$5.75..... 10¢
 Dixon's Plumbago..... 10¢
 Fireside 10¢
 Gem, 3/4 gr. \$4.50..... 10¢
 Japanese 10¢
 Jet Black 10¢
 Peerless Iron Enamel, 10 oz. cans,
 3 doz. \$1.50

Window Polish—

Benj. P. Forbes:
 Glasbright, No. 2, gal pails, 3 doz.,
 \$24.00; each, \$2.50; 1 lb cans,
 each 75¢
 Glasbright Powder, bbls., 10 lb. 20¢

Peppers, Corn—

1 qt. Square, doz. \$0.80; gro. \$8.75
 1 qt. Round, doz. \$0.90; gro. \$10.00
 1/2 qt. Square, doz. \$1.20; gro. \$12.00
 2 qt. Square, doz. \$1.50; gro. \$15.00

**Post Hole and Tree Au-
gurs and Diggers—**

See also Diggers, Post Hole, &c.

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢;
 6 ft., 46¢; 6 1/2 ft., 48¢.
 Steel Hitching Posts..... each \$1.30

Potato Parers—

See Parers, Potato.

Pots, Glue—

Enameled 40¢
 Tinned 30¢@10¢

Powder—

In Canisters:
 Duck, 1 lb..... each 45¢
 Fine Sporting, 1 lb..... each 75¢
 Rifle, 1 lb..... each 15¢
 Rifle, 1 lb..... each 25¢
 In Kegs:
 25-lb. kegs..... \$3.50
 25-lb. kegs..... \$4.50
 King's Semi-Smokeless:
 Keg (25 lb bulk)..... \$6.50
 Half Keg (12 1/2 lb bulk)..... \$3.50
 Quarter Keg (6 1/4 lb bulk)..... \$1.90
 Case 24 (1 lb cans bulk)..... \$8.50
 Half case (1 lb cans bulk)..... \$4.50
 King's Smokeless:
 Keg (25 lb bulk)..... \$12.00
 Half Keg (12 1/2 lb bulk)..... 7.75
 Quarter Keg (6 1/4 lb bulk)..... 3.25
 Case 24 (1 lb cans bulk)..... 14.00
 Half case 12 (1 lb c. bk.)..... 7.25
 8.75

Presses—

Fruit and Jelly—
 Enterprise Mfg. Co..... 20¢@25¢

Seal Presses—

Morrill's No. 1, 3 doz., \$20.00..... 50¢

Pruning Hooks and Shears

See Shears.

Pullers, Nail—

Cyclops 50¢
 Miller's Falls, No. 3, 3 doz., \$12.00..... 10¢
 Morrill's No. 1, Nail Puller, 3 doz.,
 \$20.00 50¢
 Pearson No. 1, Cyclone Spike Puller,
 each \$30.00..... 50¢
 The Scranton Co. Case Lots:
 No. 2B (large)..... \$5.50
 No. 3B (small)..... \$5.00
 Smith & Hemenway Co.:
 Diamond B..... 70¢
 Giant 60¢
 Staple Pullers, Utica and Davi-
 son 60¢

Pulleys, Single Wheel—

Inch	1/2	3/4	1	2	3
Acning or Tackle, doz.	\$0.50	.45	.60	1.05	
Hay Fork, Sivel or Solid Eye, doz., 4 in., \$1.25; 5 in., \$1.55					
Inch 2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Hot House, doz.	\$0.65	.85	1.20		
Inch 1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Screw, doz.	\$0.16	.19	.23	.30	
Inch 1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Side, doz.	\$0.25	.40	.55	.60	
Inch 1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4

Sash Pulleys—

Common Frame; Square or
 Round End, per doz., 1 1/4 and
 2 in. 17¢@20¢
 Auger Mortise, no Face Plate,
 per doz., 1 1/4 and 2 in. 20¢@21¢
 Acme, No. 35, 1 1/4 in., 19¢; 2 in., 20¢
 American Pulley Co.:
 Wrought Steel American Plain
 Axle 50¢@10¢
 Wrought Steel, Eagle..... 17¢@20¢
 Top Notch, Electrically Welded,
 Nos. 3 and 4..... 19¢
 Fox-All-Steel, Nos. 3 and 1, 2 in.,
 30¢
 Grand Rapids All Steel Noiseless,
 Niagara, No. 25, 1 1/4 in., 19¢; 2
 in. 20¢
 No. 26 Troy, 1 1/4 in., 14¢; 2 in., 16¢
 Star, No. 26, 1 1/4 in., 19¢; 2 in., 20¢
 Tackle Blocks—See Blocks.

Pumps—

Cistern 60¢
 Pitcher Spout..... 75¢@75¢@10¢
 Wood Pumps, Tubing, &c..... 50¢
 Barnes Dbl. Acting (low list)..... 40¢@5¢
 Barnes Pitcher Spout..... 75¢@10¢
 Contractors' Rubber Diaphragm, No.
 2, B. & L. Block Co..... \$16.00
 Daisy Spray Pump..... 3 doz. \$6.50
 Flint & Walling's Fast Mail Hand
 (low list)..... 50¢
 Flint & Walling's Fast Mail (low
 list) 50¢
 Flint & Walling's Tight Top
 Pitcher 75¢@10¢
 National Specialty Mfg. Co., Measur-
 ing, Nos. 2, \$6.00; 3, \$5.50..... 30¢
 Myers' Pumps (low list)..... 40¢@5¢
 Myers' Power Pumps..... 40¢@5¢
 Myers' Spray Pumps..... 40¢@5¢

Pump Leathers—

Plunger and Valve Leathers—Per
 gro.:

No.	1	2	3	4
	\$5.00	6.00	7.00	8.00

 Cup Leathers—Per 100:
 Inch. 2 1/2 3 3 1/2 4
 \$5.00 7.00 9.00 12.00

Punches—

Saddlers' or Drive, good,
 doz. 50¢@75¢
 Spring, single tube, good qual-
 ity \$1.75
 Revolving (4 tubes) doz. \$3.50
 Remis & Call Co.'s Cast St'l Drive, 50¢
 Morrill's Nos. 1AA, 1A, 1B, 1C,
 1D, \$15.00..... 50¢
 Hercules 1 die, each \$5.00..... 40¢
 Niagara Hollow Punches..... 55¢@10¢
 Tinnors' Hollow, P. S. & W. Co. 40¢
 Tinnors' Solid, P. S. & W. Co., 3/4
 doz., \$1.44..... 40¢

Rail—Barn Door, &c.—

Sliding Door, Painted Iron,
 2 1/2" @ 2 1/2" 4"
 Sliding Door, Wrought Brass,
 1 1/2 in., lb., 36¢ 30¢
 Allith Mfg. Co.: Reliable Hanger
 Track 50¢
 Cronk's:
 Double Braced Steel Rail, 3/4 ft. 3 1/4"
 O. N. T. Rail..... \$3.12
 Griffin's:
 xxx, 100 ft., 1 x 3-16 in., \$3.25;
 1 1/4 x 3-16 in., \$3.75.
 Hinged Hanger, 100 ft., 1 x 3-16
 in., \$3.50; 1 1/4 x 3-16 in., \$4.00.
 Lane's:
 Hinged Track, 100 ft. \$3.45
 O. N. T. 100 ft., 1 in., \$3.00; 1 1/4
 in., \$3.45; 1 1/2 in., \$4.00.
 Standard, 1 1/4 in. 100 ft. \$4.00
 Lawrence Bros.:
 1 x 3-16 in., 100 ft., \$7.50; 1 1/4 x
 3-16 in., \$8.75..... 55¢@7 1/2¢
 McKinney's:
 Hinged Hanger Track, 3/4 ft., 11¢
 60¢@5¢
 1 x 3-16 Track..... 55¢@7 1/2¢
 Myers' Stayon Track..... 60¢@5¢
 Richards Mfg. Co.:
 Common, 1 x 3-16 in., \$3.00; 1 1/4 x
 3-16, \$3.25; 1 1/2 x 3-16, \$3.50.
 Special Hinged Hanger Rail, 60¢@10¢
 Lag Screw Rail, No. 65..... 50¢
 Gauge Trolley Track, 3/4 ft. No. 81,
 9¢; No. 82, 14¢; No. 83, 20¢
 No. 50..... 60¢@10¢
 Nos. 61, \$3.00; 62, \$3.25; 63, \$3.50; 64,
 \$4.00; 45, \$3.25; 46, \$3.50; 49, No. 1,
 \$3.25; 49, No. 2, \$3.50.

Rakes—

NOTE—Many goods are sold
 at net prices.

Fort Madison Red Head Lawn..... \$3.25
 Fort Madison Blue Head Lawn..... \$2.75

Steel Garden: Champion, 75%;

Ideal, 80%; Victor..... 80¢@25¢
 Queen City Lawn, 3/4 doz., 20 teeth,
 \$2.85; 24, \$3.00..... net
 Anticlog Lawn, 3/4 doz..... \$4.00
 Malleable Garden..... 70¢@10¢
 Ideal Steel Garden, 3/4 doz., 12 teeth,
 \$15.00; 14, \$16.00; 16, \$18.00..... 80¢
 Kohler's:
 Lawn Queen, 20-tooth..... 3 doz. \$3.15
 Lawn Queen, 24-tooth..... 3 doz. \$3.25
 Paragon, 20-tooth..... 3 doz. \$2.70
 Paragon, 24-tooth..... 3 doz. \$2.75
 Steel Garden, 14-tooth..... 3 doz. \$2.40
 Malleable Garden, 14-tooth, 3 doz.
 \$2.00@2.25

Rasps, Horse—

Disston's 75¢
 Heller Bros. 70¢@5¢@70¢@10¢@5¢
 Liveright Bros.' Gold Medal 70¢@10¢@75¢
 McCaffrey's American Standard.....
 60¢@10¢@5¢
 New Nicholson..... 70¢@10¢@75¢
 See also Files.

Razors—

Liana Bo-ras-10..... 60¢
 Fox Razors, 3/4 doz. No. 42, \$20.00;
 No. 44, \$20.00; No. 82, Platina, 1/2
 \$25.00.
 Red Devil..... 65¢

Reels, Fishing—

Hendryx:
 M. G. Q. G. A. G. B. G. M. G. M. 16,
 Q. 16, A. 16, B. 16, 4008, Rubber,
 Populo, Nickel Populo..... 20¢
 Aluminum, German Silv., Bronze, 25¢
 1240 N. 124 N..... 20¢
 3004 N. 06 N. 6 RM. G. 9..... 25¢
 4 N. 6 PN. 24 N. 28 PN..... 20¢
 2904 P. 33 1/4; 2904 PN. 33 1/4;
 0204 PN. 33 1/4; 0204 N. 33 1/4;
 0204 PN. 33 1/4; 0204 N. 33 1/4;
 966 PN. 204 N. 974 PN..... 25¢
 5009 PN. 5009 N..... 20¢
 Competitor, 102 P. 109 PN. 302 P.
 302 PN. 102 PR. 302 PR..... 20¢
 304 P. 304 PN. 00304 P. 00304 PN. 33 1/4

Registers—List July 1, 1903.

Japanned, Electroplated and
 Bronzed 70¢
 White Porcelain Enamel..... 50¢@10¢
 Solid Brass or Bronze Metal..... 40¢

Revolvers—

Single Action..... 95¢@1.00
 Double Action, except 4 1/2 cal. \$2.00
 Double Action, 4 1/2 caliber..... \$2.00
 Automatic \$4.00
 Hammerless \$1.50

Riddles, Hardware Grade

16 in. per doz. \$2.50@2.75
 17 in. per doz. \$2.75@3.00
 18 in. per doz. \$3.00@3.25

Rings and Ringers—**Bull Rings—**

	2 1/2	3	3 1/2
Steel \$0.70	0.75	0.80	0.85
Copper \$1.10	1.25	1.65	1.95

Hog Rings and Ringers—

Hill's Rings, gro. boxes \$1.50@1.50
 Hill's Ringers, Gray Iron, doz.,
 60¢@75¢
 Hill's Ringers, Malleable Iron,
 doz. 80¢@95¢
 Blair's Rings, per gro. \$5.00@5.50
 Blair's Ringers, per doz. 75¢@90¢

Rivets and Burrs—

Copper 50¢@50¢@10¢
 Carriage, Coopers', Tinnors', &c.,
 Black 70¢@10¢
 Metallic Tinned..... 70¢

Bifurcated and Tubular—

Assorted in Boxes.
 Bifurcated, per doz. boxes, paste-
 board boxes, 50 count, 23¢@25¢;
 Tin boxes, 100 count, 25¢@32¢.
 Tubular, per doz. boxes, 50 count,
 29¢@32¢; 100 count, 51¢@55¢.

Rollers—

Cronk's Stay, No. 50..... \$1.00
 Cronk's Brinkerhoff No. 55, \$0.60;
 No. 56, \$0.75; No. 60..... \$0.75
 Lane's Stay..... 40¢
 Richards' Stay:
 Handy Adj. and Reversible No. 53, 75¢
 O. K. Adj. and Reversible No. 55, 50¢
 Lag Screw, Nos. 55 and 57..... 50¢
 Underwriters' Nos. 58, 60..... 50¢
 Favorite, No. 54..... 60¢

Rope—

Manila, 7-16 in. diam. and larger:
 Pure 10¢@10¢@10¢
 Steel, 7-16 in. diam. and larger:
 Pure 10¢@10¢@10¢
 Sial, Hay, Hide and Bale
 Ropes, Medium and Coarse:
 Pure 10¢@10¢@10¢
 Sial, Tarred, Medium Lath
 Yarn:
 Pure 10¢@10¢@10¢
 Cotton Rope:
 Best, 1/4-in. and larger..... 18¢@20¢
 Medium, 1/4-in. and larger..... 16¢@17¢
 Common, 1/4-in. and larger..... 10¢
 In coils, 1/2¢ advance.
 Jute Rope:
 Thread, No. 1, 1/4-in. and up,
 lb. 6¢@6¢
 Thread, No. 2, 1/4-in. and up,
 lb. 5¢@5¢

Wire Rope—

Galvanized 37¢@42¢
 Plain 45¢@52¢

Ropes, Hammock—

Covert Mfg. Co.:
 Jute, 35%; Sial..... 20¢

Rules

Boxwood 60¢@60¢@10¢
 Ivory 35¢@10¢@35¢@10¢@5¢
 Chapin-Stephens Co.:
 Boxwood 60¢
 Flexfold 40¢
 Ivory 25¢@25¢@10¢
 Miscellaneous 50¢@60¢@10¢
 Stephens' Combination..... 50¢
 Stationers' 50¢@50¢@10¢
 Keuffel & Esser Co.:
 Folding, Wood..... 35¢@10¢
 Folding, Steel..... 33¢@10¢
 Lufkin's Steel..... 50¢@10¢
 Lufkin's Lumber..... 50¢@10¢
 Upon Nut

Saws—

Atkins' Circular	45%
Band	50@50&10%
Butcher Saws	50%
Cross Cuts	50%
One-Man Cross Cut	50%
Narrow Cross Cut	50%
Hand, Rip and Panel	35&5%
Miter Box and Compass	40%
Mulay, Mill and Drag	45%
Wood Saws	40&10%
Chapin-Stephens Co.	
Turning Saws and Frames	30&30&10%
Diamond Saw & Stamping Works	
Sterling Kitchen Saws	30&10&10%
Disston's:	
Circular, Solid and Ins'ted Tooth	50%
Band, 2 to 18 in. wide	60%
Hand, 4 to 14	60%
Crosscuts	50%
Narrow Crosscuts	50%
Mulay, Mill and Drag	50%
Framed Woodsaws	25%
Woodsaw Blades	25%
Woodsaw Rods, Tinned	15%
Hand Saws, Nos. 12, 99, 9, 16, d100	
D8, 120, 76, 77, 8	25%
Hand Saws, Nos. 7, 107, 107 1/2, 3, 1	
0, 60, Combination	25%
Compass, Key Hole, &c.	25%
Butcher Saws and Blades	30%
C. E. Jennings & Co.'s:	
Back Saws	16%
Butcher Saws	25&7 1/2%
Compass and Key Hole	25&7 1/2%
Framed Wood Saws	33&4 1/2%
Hand Saws	12%
Wood Saw Blades	33&4 1/2%
Millers Falls:	
Butcher Saws	15&10%
Star Saw Blades	15&10%
Massachusetts Saw Works:	
Victor Kitchen Saws	40&10&50%
Back Saws	35&40%
Peace & Richardson's Hand Saws	30%
Simonds':	
Circular Saws	45%
Crescent Ground Cross Cut Saws	30%
One-Man Cross Cuts	40&10%
Hand Mill, Mulay and Drag Saws	45%
Hand Saws	50%
Back Saws	25&25&7 1/2%
Butcher Saws	35&35&7 1/2%
Hand Saws	25&25&7 1/2%
Hand Saws, Bay State Brand	45%
Compass, Key Hole, &c.	25&25&7 1/2%
Wood Saws	40&7 1/2%
Wheeler, Madden & Clemons Mfg.	
Co.'s Cross Cut Saws	50%

Hack Saw Blades and Frames—

Atkins' Hack Saw Blades A A A	25%
Disston's:	
Concave Blades	35%
Keystone Blades	35%
Hack Saw Frames	30%
Simonds File Co.	35%
C. E. Jennings & Co.'s:	
Hack Saw Frames, Nos. 175, 180	
Hack Saws, Nos. 175, 180, complete	40&7 1/2%
Goodell's Hack Saw Blades	40&10%
Griffin's Hack Saw Frames	35&5&10%
Griffin's Hack Saw Blades	35&5&10%
Star Hack Saws and Blades	15&10%
Sterling Hack Saw Blades	30&10&5%
Sterling Hack Saw Frames	35&10&10%
Sterling Power Hack Saw Machine	
each, No. 1, \$25.00; No. 2, \$30.00, 10%	
Victor Hack Saw Blades	20%
Victor Hack Saw Frames	40%
Whitaker Mfg. Co.:	
National Hand Blades	40%
National Hand Frames	30&5%
National Power Blades	30&10%

Scroll—

Barnes, No. 7, \$15	25%
Barnes' Scroll Saw Blades	40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, \$110	
with boring attachment, \$30	20%
Lester, complete, \$10.00	15&10%
Rogers, complete, \$3.50 and \$4.00	15&10%

Scales—

Union Platform, Plain	\$2.10 @ 2.20
Union Platform, Stpd.	\$2.20 @ 2.30
Chattillon's:	
Eureka	25%
Favorite	40%
Grocers' Trip Scales	40%
The Standard Platform	40%
The Standard B. R. and Wag-	
on	40%

Scrapers—

Box, 1 Handle	doz. \$1.85 @ 2.10
Box, 2 Handle	doz. \$2.35 @ 2.50
Ship, Light, \$2.00; Heavy, \$4.50	
Chapin-Stephens Co., Box	30&30&10%
Richards Mfg. Co., Foot	30%

Screws—Bench and Hand

Bench, Iron, doz, 1 in.	\$2.50 @ 2.75
2 1/2; 1 1/2, \$1.00 @ 1.25; 1 1/4, \$1.00 @ 1.25	
Bench, Wood	20 @ 20&10%
Hand, Wood	70&10 @ 70&10&10%
Chapin-Stephens Co., Hand	70&70&10&2 1/2%

Coach, Lag and Hand Rail—

Log, Cone Point	80&5 @ 80&10%
Coach, Gimlet Point	80 @ 80&5%
Hand Rail	70&10 @ 75%

Jack Screws—

Standard List	70&10 @ 75%
Millers Falls	50&10 @ 10%
Swett Iron Works	70&75%

Machine—

Cut Tread, Iron, Brass or Bronze:	
Flat Head or Round Head	50 @ 80&10%
Fillister Head	40 @ 40&10%

Rolled Thread, F. H. or R. H., Iron 75&10%
F. H. or R. H., Brass, Nos. 8 to 14. 65&10%

Set and Cap—

Set (Iron)	75&10&7 1/2%
Set (Steel), net advance over Iron	25%
Sq. Hd. Cap	70&10&7 1/2%
Hex. Hd. Cap	70&10&7 1/2%
Rd. Hd. Cap	50&7 1/2%
Fillister Hd. Cap	60&7 1/2%

Wood—

List July 23, 1908.

Flat Head, Iron	87 1/2 @ 50%
Round Head, Iron	85 @ 50%
Flat Head, Brass	80 @ 50%
Round Head, Brass	77 1/2 @ 50%
Flat Head, Bronze	75 @ 50%
Round Head, Bronze	72 1/2 @ 50%
Drill Screws	87 1/2 @ 50%

Scroll Saws—

See Saws, Scroll.

Scythes—

Per doz.

Grass, No. 1, Plain	\$7.00
Clipper, Bronzed Webb	\$7.25
No. 3 Clipper, Pol'd Webb	\$7.50
No. 7 Clipper and Solid Steel	\$7.75
Bush, Weed and Bramble, Nos. 11, 12 and 13	\$7.25
Grain, No. 1	\$9.00 @ 9.50
Bronzed Webb, No. 1	\$9.25 @ 9.75
Nos. 3 and 4 Clipper, Grain	\$9.50 @ 10.00
Solid Steel, No. 6	\$10.00 @ 10.50

Seeders, Raisin—

Enterprise	25 @ 30%
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Sets—Awl and Tool—

Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$16; 3, \$12	50%
Millers Falls Adj. Tool Handles, No. 1, \$12; No. 4, \$12; No. 5, \$18, 20&10%	

Garden Tool Sets—

Ft. Madison Three Plows, Hoe, Rake and Shovel	per doz, sets \$9.00
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Sets, Nail—

Octagon	gro. \$3.50 @ 3.75
Black Bros	27 1/2%
Cannon's Diamond Point	per doz, \$12, 40&10%
Mayhew's	per doz, \$9.00
Snell's Corrugated, Cup Pt.	40&10%
Snell's Knurled, Cup Pt.	40&10%
Victor Knurled, Cup Pt.	per doz, \$7.50

Rivet—

Regular list	75 @ 75&10%
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Saw—

Atkins':	
Criterion	40%
Adjustable	40%
Disston's Star, Monarch and Triumph	30%
Morrill's No. 1	\$15.00
Nos. 3 and 4, Cross Cut	\$20.00
No. 5, Mill	\$30.00
Nos. 10, 11, 8	\$15.00
No. 1 Old Style	\$10.00
Special	\$16.25
Giant Royal Cross Cut	per doz, \$8.00
Royal, Hand	per doz, \$4.50
Taintor Positive	per doz, \$6.75

Shaving—

Fox Shaving Sets, No. 30	per doz, net, \$24.00
Smith & Hemenway Co.'s	75%

Sharpeners, Knife—

Pike Mfg. Co.:	
Fast Cut Pocket Knife Hones	per doz, \$1.50
Mounted Kitchen Sand Stone	per doz, \$1.50
Natural Grit Carving Knife Hones	per doz, \$3.00
Quick Cut Emery Carving Knife Hones	per doz, \$1.50
Quick Edge Pocket Knife Hones	per doz, \$2.50

Skate—

Smith & Hemenway Co., Eureka	50%
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Shaves, Spoke—

Iron	doz. \$1.25
Wood	doz. \$2.00
Bailey's (Stanley R. & L. Co.)	45%
Chapin-Stephens Co.	30&30&10%
Goodell's	per doz, \$9.00, 15&10%

Shears—

Cast Iron	7 8 9 in.
Best	\$16.00 18.00 20.00 gro.
Good	\$13.00 15.00 17.00 gro.
Cheap	\$5.00 6.00 7.00 gro.
Straight Trimmers, &c.:	
Best quality Jap.	70 @ 70&10%
Best quality Nickel	60 @ 60&10%
Tailors' Shears	40 @ 40&10%
Acme Cast Shears	40 @ 40&5%
Heinisch's Tailor's Shears	10%
National Cutlery Co.'s Nickel Plated	60&10%; Japan Handles, 70&10%
Wilkinson Shear & Cutlery Co.:	
Sheep, 1900 list	30&10&5%
Horse or Mule	50&10%
J. Wiss & Sons Co.:	
Best Quality Jap'd	60&10%
Best Quality Nickle'd	50&10%
Tailors'	25%

Tinners' Snips—

Steel Blades	80&8 @ 80&10%
Steel Laid Blades	40 @ 10&10%

Forged Handles, Steel Blades, Berlin 50%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s 6 1/2 to 10 in. 33&4 1/2%
National Cutlery Co.'s Forged Steel 50%
Niagara Snips 40%
P. S. & W. Forged Handles, 25%
W. R. W. 40&10%
J. Wiss & Sons Co.:
Wiss Forged Steel 25%

Pruning Shears—

Cronk's Hand Shears	33 1/4%
Cronk's Wood Handle Shears	33 1/4%
Disston's Combined Pruning Hook and Saw, per doz, \$18.00	25%
Disston's Pruning Hook only, per doz, \$12.00	25%
John T. Henry Mfg. Co.:	
Pruning Shears, all grades	40%
P. S. & W. Co.	40&10%
Columbian Cutlery Co.:	
Hedge, Wilcut Brand	60&10%
Lawn and Border, Wilcut Brand	60&10%

Sheaves—Sliding Door—

Reading	40%
R. & E. list	15%

Sliding Shutter—

Reading list	40%
R. & E. list	10%

Shells—Shells, Empty—

Brass Shells, Empty:	
Climax, 10 and 12 gauge	65&10%
Club, Rival, 6&5%; First Quality	60&5%

Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, 25&10%
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade, 25&5%

Union League, 12 and 12 gauge;
Rival Grade, 25%
New Climax, Defiance, 10, 12, 14 and 20 gauge; Climax, 14, 16 and 20 gauge; Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade, 20%

Shells, Loaded—

Loaded with Black Powder	40%
Loaded with Smokeless Powder, medium grade	40&5%
Loaded with Smokeless Powder, high grade	40&10&10%
Union Metallic Cartridge Co.:	
New Club, Black Powder	40%
Nitro Club, Smokeless Powder	40&5%
Arrow, Smokeless Powder	40&10&10%
Winchester:	
Smokeless Repeater Grade	40&5%
Smokeless Leader Grade	40&10&10%
Black Powder	40%

Shingles, Metal—Per Sq.

Edwards Mfg. Co.:	
Painted	Galv.
14 x 20	\$4.25 \$6.00
10 x 14	4.50 6.25
7 x 10	4.75 6.50
Wheeling Corrugating Co.:	
Dixie, 14 x 20 in.	\$4.25 \$5.50
Dixie, 10 x 14 in.	4.50 6.00
Dixie, 7 x 10 in.	5.00 6.75

Shoes, Horse, Mule, &c.—

F.o.b. Pittsburgh:	
Iron	per keg, \$4.10
Steel	per keg, \$3.85
Burden's, all sizes	per keg, \$3.90

Shot—

Drop, up to B	25-lb. bag, \$1.50
Drop, B and larger	2.05
Buck	2.05
Chilled	2.05
Dust	2.30

Shovels and Spades—

Association List, Nov. 15, 1902	40%
Avery Stamping Co.	40%

Snow Shovels—

Long Handle	\$3.25 @ \$3.50
Wood and Mall, D Handle	\$3.75 @ \$4.00

Sieves and Sifters—

Hunter's Imitation, gro.	\$9.50
Hunter's Genuine, per gro.	\$12.00

Sifters, Ash—

Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each	\$3.25
per doz.	\$30.00

Sieves, Seamless Metallic

Per dozen:	
Mesh	1 1/4 1 1/2 1 3/4 2 3/4
Iron Wire	\$1.05 1.05 1.05 1.20
Tinned Wire	\$1.15 1.15 1.30 1.30

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch	
Mesh 18, Nested	doz. \$0.90 @ 0.95
Mesh 20, Nested	doz. \$1.00 @ 1.05
Mesh 24, Nested	doz. \$1.30 @ 1.40

Sinks, Cast Iron—

Painted, Standard List:

12 x 12 to 22 x 36 in.	60%
20 x 24 to 24 x 50 in.	50%
24 x 60 to 24 x 120 in.	30%
Barnes' low list:	
Up to and including 20 x 36 in.	50&5%
20 x 40 to 24 x 50 in.	45%

NOTE—There is not entire uniformity in lists used by jobbers.

Skins, Wagon—

Cast Iron	70 @ 75&10%
Steel	40 @ 45%

Slates, School—

Factory Shipments.
"D" Slates. 50 @ 50&10%
Eureka, Unexcelled Noiseless 60&7 tens.
Victor A, Noiseless 60&10&10%

Slaw Cutters—See Cutters.**Snaps, Harness—**

German	40 @ 40&10%
Covert Mfg. Co.:	
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%	
High Grade, 40%; Trojan	40%
Jockey	25%

Snaths—

Scythe	60%
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Snips, Tinners—See Shears.**Spoons and Forks—****Silver Plated—**

Good Quality	50 @ 50&10%
Cheap	60 @ 60&10%
International Silver Co.:	
1347 Rogers Bros., 40&10%; Rogers & Hamilton	50&10%
Rogers & Bro., William Rogers	50&10%
Eagle Brand	50&10%
Anchor, Rogers Brand	60%
Wm. Rogers & Son	60&10%

Miscellaneous

German Silver. 60 @ 60&5%

Tinned Iron—

Teas	per gro. 50 @ 55¢
Tables	per gro. \$0.90 @ \$1.00

Springs—Door—

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:

1 to 1 1/4 in. round and square.....	per lb. 1.90¢
1 1/4 to 4 in. x 3/4 to 1 in.....	per lb. 2.00¢
1 1/2 to 4 in. x 1/4 to 5/16.....	per lb. 2.00¢
Rods—3/4 and 1-1/2 round and square.....	per lb. 2.00¢
Angles:	Cts per lb.
3 in. x 3/4 in. and larger.....	2.25¢
3 in. x 5/16 in. and 3/4 in.....	2.30¢
1 1/4 to 3 in. x 3/4 in.....	2.10¢
1 1/2 to 3 in. x 3/16 in. and thicker.....	2.05¢
1 to 1 1/4 in. x 3/16 in.....	2.10¢
1 to 1 1/4 x 3/4 in.....	2.15¢
3/4 x 3/4 in.....	2.30¢
3/4 x 1/2 in.....	2.40¢
3/4 x 5/16 in.....	2.45¢
3/4 x 3/32 in.....	2.95¢

Tees:

1 in.....	2.40¢
1 1/4 in.....	2.30¢
1 1/2 to 3 in.....	2.10¢
3 in. and larger.....	2.35¢
Beams.....	2.25¢
Channels, 3 in. and larger.....	2.25¢
Bands—1 1/4 to 6 x 3-16 to No. 8.....	2.25¢
"Burden's Best" Iron, base price.....	3.15¢
Burden's "H. B. & S." Iron, base price.....	2.95¢
"Ulster".....	3.20¢
Norway Bars.....	3.30¢

Merchant Steel from Store—

Bessemer Machinery.....	per lb. 1.90¢
Toe Calk, Tire and Sleigh Shoe.....	2.50¢ @ 8.00¢
Best Cast Steel, base price in small lots.....	7¢

Sheets from Store—

Black

	One Pass, C.R.	Soft Steel.	R. G.
			Cleaned.
No. 14.....	per lb. 2.50¢	2.90¢	
No. 18 to 21.....	per lb. 2.95¢	3.10¢	
No. 27.....	per lb. 3.15¢	3.40¢	
No. 28.....	per lb. 3.30¢	3.50¢	

Russia, Planished, &c.

Genuine Russia, according to assort-	per lb. 11¢ @ 14¢
ment, W. Deweeswood.....	
Patent Planished.....	per lb. A, 10¢; B, 9¢, net.

Galvanized.

Nos. 14 to 16.....	per lb. 3.15¢
Nos. 22 to 24.....	per lb. 3.35¢
No. 27.....	per lb. 4.00¢
No. 28.....	per lb. 4.25¢
No. 30 and lighter 36 inches wide, 25¢ higher.	

Tin Plates—

American Charcoal Plates (per box.)	
"A.A.A." Charcoal:	
IC, 14 x 20.....	\$6.40
IX, 14 x 20.....	7.65
A. Charcoal:	
IC, 14 x 20.....	\$5.45
IX, 14 x 20.....	6.55

American Coke Plates—Bessemer—	
IC, 14 x 20.....	107 lb. \$4.45
IX, 14 x 20.....	5.45

American Terne Plates—	
IC, 20 x 28 with an 8 lb. coating.....	\$8.00
IX, 20 x 28 with an 8 lb. coating.....	10.00

Seamless Brass Tubes—	
List December 4, 1905.....	Base price 18¢

Brass Tubes, Iron Pipe Sizes—	
List December 4, 1905.....	Base price 18¢

Copper Tubes	
List December 4, 1905.....	Base price 21¢

Braze Brass Tubes—	
List June 6, 1898.....	21¢ per lb.

High Brass Rods—	
.....	14¢ per lb.

Roll and Sheet Brass—	
List June 6, 1898.....	14¢ per lb.

METALS—

Tin—

Straits Pig.....	per lb. 22¢ @ 24¢
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Copper—

Lake Ingot.....	per lb. 14¢ @ 14 1/4¢
Electrolytic.....	per lb. 14¢ @ 14 1/4¢
Casting.....	per lb. 13 1/2¢ @ 13 3/4¢

Sheet Copper Hot Rolled, 16 oz.....	per lb. 17¢ @ 18¢
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Sheet Copper Cold Rolled, 1¢ per lb. advance over Hot Rolled.....	
Sheet Copper Polished 20 in. wide and under, 1¢ advance over Cold Rolled.....	
Sheet Copper Polished over 20 in. wide, 2¢ advance over Cold Rolled.....	
Bottoms, Pits and Flats.....	per lb. 21¢ basis
Planished Copper, 1¢ per lb. more than Polished.....	

Spelter—

Western.....	per lb. 5 1/4¢ @ 5 1/2¢
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Zinc.

No. 9, base, casks, per lb. 7.50¢ Open.....	per lb. 8.00¢
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Lead.

American Pig.....	per lb. 5¢ @ 5 1/4¢
Bar.....	per lb. 6¢ @ 6 1/4¢

Solder.

1/2 & 3/4, guaranteed.....	per lb. 20¢ @ 20 1/2¢
No. 1.....	per lb. 17 1/2¢ @ 18¢
Refined.....	per lb. 15 1/4¢ @ 16¢
Prices of Solder indicated by private brand vary according to composition.	

Antimony—

Cookson.....	per lb. 11¢
Balletts.....	@ 10 1/2¢
Other Brands.....	@ 9 1/2¢

Bismuth—

Per lb.	\$1.90 @ \$2.00
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Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:	
Small lots.....	per lb. 17 1/2¢ @ 18¢
100-lb. lots.....	per lb. 15 1/4¢ @ 16¢
Rods & Wire.....	Base Price 38¢
Sheets.....	Base Price 40¢

Old Metals.

Dealers' Purchasing Prices Paid in New York

	—Cents—
Copper, Heavy and Wire.....	per lb. 11.00¢ @ 11.25¢
Copper, Light and Bottoms.....	per lb. 10.25¢ @ 10.50¢
Brass, Heavy.....	per lb. 7.75¢ @ 8.00¢
Heavy Machine Composition.....	per lb. 10.50¢ @ 10.75¢
Clean Brass Turnings.....	per lb. 7.00¢ @ 7.25¢
Composition Turnings.....	per lb. 8.25¢ @ 8.50¢
Lead, Heavy.....	per lb. 8.00¢ @ 8.25¢
Tea Lead.....	per lb. 8.60¢
Zinc Scrap.....	per lb. 3.30¢

THE IRON AGE

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